

Electronic Document Development & Coordination

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Electronic Document Development and Coordination

EXECUTIVE SUMMARY

The Defense Logistics Agency (DLA)-led DoD Integrated Project Team (IPT) was assigned Objective VI.B—*the DSP has a universally accepted process for coordinating standardization decisions*—and Objective VI.C—*the DSP provides technically correct products in a timely manner*—from the Defense Standardization Program Strategic Plan. In support of these objectives, two specific actions were pursued: Action VI.B.1—*reengineer the existing DSP coordination process to meet the needs of a wider community*—and Action VI.C.1—*make the document development cycle more efficient*. The IPT reviewed the current DoD document development and coordination process and how best to change current practices and policies to facilitate the most cost effective and efficient standardization program to meet the needs of our military customers.

Today's process for developing and coordinating DoD standardization documents is an ad hoc combination of paper-based and electronic-based processes. Each Preparing Activity (PA) is left to his own devices on how best to accomplish the mission in meeting the policy requirements of DoD 4120.24-M.

The major focus of the IPT was to review the standardization document development and coordination process and adapt those processes to reflect the latest Internet and Web technologies. This effort began with a comprehensive review of the current system in use today by various PAs (the as-is process). In addition, the IPT invited military PAs, other DoD organizations, and industry to brief on various initiatives and processes that are in use today that use Internet and Web technologies. This review served as a springboard for identifying best practices for use in developing a proposal for a new DoD-wide system for developing and coordinating standardization documents, as well as addressing user feedback and overage document review.

The IPT proposes a new to-be system for use in the DoD for accomplishing the document standardization mission. Recommendations include not only automation changes (e.g., Web and Internet processes), but also changes to existing policies under DoD 4120.24-M and related documents, such as MIL-STD-961 and MIL-STD-962. The IPT results are further integrated with the efforts of the Infrastructure IPT and the creation of a DoD Standardization Information Exchange System (IES) Portal for the standardization community. The new document development and coordination system, as described herein, would be an integral part of the IES.

The results and recommendations from the IPT on document development and coordination are documented in Tab D1.01—Electronic Document Development and Coordination. This set of recommendations depicts the current as-is system, as well as the to-be system, along with the functional requirements needed move to a new DoD system for standardization document development and coordination.

Following are the IPT recommendations for the Standardization document development and coordination business process:

- υ *Recommendation #1:* The Defense Standardization Program Office (DSPO) should implement a Web-based, electronic document development and coordination tool to facilitate and further improve the standardization document development and coordination business process. Appendix C, “To-Be Business Process Functional Requirements,” contains specific functional requirements.
- υ *Recommendation #2:* Because the resource-constrained environment may preclude fulfillment of all requirements, the DSPO should place highest priority on improving document coordination in the business process. The system should be designed to accommodate future expansions and improvements that incorporate all functional requirements.
- υ *Recommendation #3:* The DSPO should form a Document Development and Coordination User Group to evaluate and assist implementation of the software solution, define specific user requirements, and tailor the user interface and functionality. The User Group should include key members from the DSP IPTs.

Based on information the IPT obtained during its meetings, we believe sufficient government-off-the-shelf (GOTS) and commercial-off-the-shelf (COTS) solutions are available—some at no charge to federal government agencies—to meet user requirements. An undetermined amount of customization, however, will be required for interfaces with legacy systems and data and to tailor the solution for the Standardization work environment.

PROBLEM STATEMENT

The existing business process for developing and coordinating Standardization documents uses a combination of labor-intensive, time-consuming electronic and paper-based tools and processes. As the Standardization workforce is increasingly resource-limited, it must capitalize on recent, rapid improvements in electronic publishing and Web-based communication and collaboration tools to provide faster, more accurate, and wider-reaching support for its customers.

TASKING

The *Defense Standardization Program Strategic Plan Implementation* assigned the IPT, led by the Defense Logistics Agency (DLA), to the task of developing recommendations to improve the development and coordination of Defense Standardization documents. Following is a list of the complete IPT tasking:¹

Objective VI.B	
The DSP has a universally accepted process for coordinating standardization decisions.	
Action VI.B.1 Reengineer the existing DSP coordination process to meet the needs of a wider community.	Key Steps <ol style="list-style-type: none">1. Identify potential stakeholders (government and industry, national and international).2. Design an improved process taking advantage of latest collaborative technology.3. Implement changes in policy and procedures.4. Conduct outreach.

Objective VI.C	
The DSP provides technically correct products in a timely manner.	
Action VI.C.1 Make the document-development cycle more efficient.	Key Steps <ol style="list-style-type: none">1. Identify inefficiencies in the current process for development, coordination, and publication.2. Recommend changes to eliminate these inefficiencies.

The IPT thoroughly reviewed the as-is business process for Standardization document development and coordination. As a result, the IPT proposes a number

¹ Defense Standardization Program Office, “*Defense Standardization Program Strategic Plan Implementation, A Management and Leadership Strategy for the Challenges of the 21st Century*,” October 1999, p. 9.

of recommendations to improve the business process. Some of the improvements require policy changes; others require the application of technology. Separate Tabs contain the recommended policy changes.² This Tab focuses primarily on recommendations pertaining to the application of technology. The IPT developed the following guiding principles as a basis for its recommendations:

- υ The in-progress efforts of other Standardization IPTs do not affect the fundamental DSP infrastructure, which this IPT used as a base for its recommendations.
- υ The business process should focus on the informational and functional requirements of the entire Standardization community, including document preparers, reviewers, and users.
- υ The business process should take advantage of developments in collaborative and data management technologies, and the business process should be modified in accordance with technological change.
- υ The improved business process requires changes in process and policy, as well as the implementation of new technologies.
- υ Partnerships or collaboration with government and commercial developers of tools that offer existing functionality is preferred over the development of custom products.
- υ Integration of improved functionality, technologies, and tools should be implemented seamlessly into current user work environments.
- υ Implementation of improved business process and tools should be conducted in phases.

DEFINITION OF NEED OR OPPORTUNITY

In this section, we describe the current business process for the development and coordination of Standardization documents and examine opportunities for improvement. We document both the as-is and to-be business processes in detail in Appendixes A and B, respectively.

² Tab D1.04 (Electronic Validation), Tab D1.05 (Incorporated Amendments), and Tab D1.06 (Incorporated Change Notice) contain specific policy recommendations designed to capitalize on improvements in Web-based communication and collaboration. Policy recommendations that focus on improved business processes in the areas of overage document review, non-government standards, and international standardization agreements are documented in Tabs D1.07, D1.08, and D1.09, respectively.

For this discussion and analysis, the IPT divided the as-is Standardization document cradle-to-grave life cycle into eight subprocesses. (The to-be subprocess titles vary from the as-is subprocess titles because of improvements the IPT made to the to-be process.) Following are the eight as-is subprocesses:

- Recognition of document need
- Project initiation and approval
- Document development
- Document coordination
- Comment resolution
- Dispute resolution (for resolving essential comments)
- Document maintenance
- User feedback.

For each of the eight life cycle subprocesses, we describe the current inefficiencies with each process and propose improvements that, in many cases, take advantage of technical opportunities.

Recognition of Document Need

Recognizing document need is a knowledge-intensive process. The need comes from different sources.³ The first recognition of need often originates in engineering and technical activities in the acquisition community where there is no ready mechanism to convey that need to the Standardization community. In other cases, the DSP community identifies a document need through market research and analysis by participating in industry meetings, plant visits, and product evaluations. The DSP community also uses processes to regularly review new requirements such as the overage document review and user feedback (Form 1426).

In today's financially lean business environment, each Preparing Activity (PA) is responsible for gaining and maintaining access to myriad standardization-related activities in acquisition program offices, engineering support activities (ESAs), non-government standards (NGS) bodies, international standardization organizations (ISOs), Defense Service Laboratories, other Federal Agencies, and commercial industry. "Shadow organizations" or field activities manage most of these activities. These organizations and activities are not a formal DSP element, but contribute to the Standardization document process.

³ Refer to Appendix A, "Document Development & Coordination As-Is Business Process," for a list of knowledge sources.

Under an improved business process, the Standardization community will have ready access to knowledge that exists within these various sources without expending duplicate time and effort. The Standardization community requires a single gateway into all Standardization knowledge to allow users to search, print, download, and exchange data necessary for document development. Such a gateway also will allow users to cross-reference information directly related to document development, such as standardization document applications in weapon systems, cradle-to-grave project points of contact, and project folders.

The IPT provided its requirements for information and knowledge access that are not tied directly to the document development and coordination process to the Infrastructure IPT for incorporation into the Information Exchange System (IES) Portal requirements document. This set of recommendations will contain no further discussion of knowledge requirements over which the Preparing Activity does not have direct control.

Project Initiation and Approval

Project initiation and approval require timely, accurate communication between the PA, the Lead Standardization Activity (LSA), and others as required. The as-is process uses a combination of electronic and paper-based tools and processes. Communication is via e-mail, phone, fax, voice, and letter—a labor-intensive, time-consuming process that provides no confidence that communications are successful and recorded.

With recent, rapid improvements in Web-based communication and collaboration tools, the project initiation and approval process will migrate toward an electronic, Web-based, real-time work environment that enables faster, more accurate, and wider reaching communication. Such capability will help ensure that communications are routed to individuals who can take action, even in the case of temporary absence or permanent replacement of personnel. The system also will provide tracking information and improved visibility into the process to expedite project initiation and approval.

Although a DSP policy statement documents the appeal process for project initiation, Preparing Activities conduct the activity *ad hoc* and depend on stove-piped mechanisms for forwarding appeals.

An electronic, Web-based system will streamline the process by providing for electronic transfer of appeals, using databases for appeal documentation, maintaining lists of points of contact, and automating notification that the Departmental Standardization Office (DepSO) and DSPO have received and acted on the appeal.

Document Development

Preparing Activities conduct the current document development process *ad hoc*. The PA develops the draft document using available electronic authoring tools, such as the Microsoft Office suite of applications, engineering drawing software, and document templates. As a result, formatting and other inconsistencies exist. The PA typically refers to military standards, manuals, instructions, and policy memoranda, as well as various knowledge sources documented in Appendix A. There also may be inconsistencies in the currency or availability of such tools.

Under an improved system, document developers would access a single gateway into all Standardization knowledge that allows document preparers to search, print, download, and exchange data necessary for document development. The PA will have access to templates or boilerplates for both format and content. PAs will be given access to authoritative databases for researching references.

By relying on a common set of tools and common reviewing and comment capabilities, the process is more easily understood and, thus, expedited. Workflow tools allow all reviewers to view the submission and adjudication of their comments, as well as document revision. Where appropriate, such workflow tools allow reviewers to view the comments and suggestions of additional reviewers. Where there are objections, the process to adjudicate such objections may begin immediately. Workflow tools also expedite the approval process that is required at many reviewers' organizations.

A disciplined document development process flows directly into an improved document coordination process. The PA will be able to quickly and easily forward announcements of pending document work to interested parties. Each of these interested parties becomes a potential collaborator and coordinator.

Document Coordination and Comment Resolution

A Preparing Activity can notify the community of the release of a draft document by various means such as mail, e-mail, and fax. The PA is responsible for maintaining current distribution lists electronically or on paper. The draft document is made available to reviewers via a website, fax, e-mail, or mailed copies on paper, CDs, or diskettes. Communication problems may arise between the PA and reviewers. There may be no return receipt, unannounced personnel or address changes, routing of documents to individuals rather than organizations, and late or no comments. According to policy, Custodians are to consolidate and forward their department's comments to the PA. In fact, the PA receives some comments directly from reviewers who bypass consolidation by the Custodian.

In most current cases, comment resolution requires a labor-intensive effort by the Preparing Activity. The PA receives comments in multiple formats, including letter, e-mail, fax, phone, and direct conversation. The PA compiles the comments using manual or computer-aided methods, and must order comments manually by

paragraph number, comment type, reviewer, disposition, and other factors. If the PA cannot resolve a comment, the PA is required to elevate essential comments for resolution and make available necessary documentation to the LSA or DepSO.

An improved business process will allow PAs to post all relevant documentation for review to a central, Web-based portal accessible to all reviewers. Through this same portal, the PA has access to contact information and registered interests of potential reviewers to compile a distribution list. The PA can use the distribution list to create e-mail messages via the IES Portal, alerting reviewers to the availability of documentation for review. The PA can notify reviewers simultaneously and elect message receipt verifications such as “received” and “read.”

Under the improved system, PAs can allow reviewers to submit comments directly to the PA, bypassing Custodian review and consolidation.⁴ If Custodians choose, they can continue to consolidate and adjudicate comments within their departments before submitting them to the PA. An improved system also will allow the PA and others as designated by the PA to submit and review comments via a Web portal. This process will promote consistency in comment format and allow all reviewers to simultaneously review comments that might affect one another. The new system also will provide the PA with a tool to electronically sort, compile, and merge comments into a new document, while maintaining an electronic record of each comment including reviewer, disposition, and rationale.

Dispute Resolution and Document Completion

Under the current system, if a PA requires resolution of essential comments by the LSA or DepSO, the PA must forward necessary documentation to the LSA or DepSO via electronic or non-electronic means. The process of forwarding essential comments for resolution is time-consuming for two primary reasons: (1) information is exchanged in multiple formats, and (2) there is no automated assurance or notification when comments have been resolved or forwarded for continuing arbitration.

A work environment centered on a Web portal allows all necessary information to be accessed in one central location. The PA will need only to notify the LSA or DepSO that a comment requires attention, and that all necessary information is available via the Web portal. If the LSA/DepSO takes action to resolve or forward the comment, the system can issue an automated notice to the PA with the status of the comment. The automated notification will provide the PA with improved visibility into the status of comment resolution and enable the PA to better manage the process.

In some cases after coordination, the PA is required to conduct additional research on qualification and performance specifications, new standards, or Service and

⁴ The IPT’s proposed policy change is contained in Tab D1.10, “Review Activity Comments on DoD Standardization Documents.”

Agency policy memoranda. The Document Automation and Production Service (DAPS) conducts a document check, and either publishes the document electronically through ASSIST or returns the document to the PA for corrections and changes. If published, DAPS electronically notifies interested parties through the ASSIST ALERT service and executes a project closeout.

If additional research is required, an improved system will allow the PA to conduct searches for relevant information via the Web portal. DAPS will conduct a document check and “publish” the document to the Web portal. The system will dispatch an automatic alert of the document’s availability to users who have indicated a registered interest.

Document Maintenance

Document maintenance refers to the overage document review process described in DoD 4120.24-M—a process that is overwhelming limited DSP resources. The DoD Single Stock Point (DoDSSP) annually mails a hardcopy listing of overage documents to the DSPO. The DSPO forwards the list to the DepSO, who in turn forwards the list to the Preparing Activity. The PA conducts a document review based on available knowledge sources and determines if a new project must be initiated. Current policy calls for generation of a stand-alone, hardcopy validation notice.

The IPT examined two possible scenarios. The first scenario is a revision to the current business process as described in Tab D1.04—Electronic Validation. Under an improved system using Web-based document maintenance tools, the system can conduct automatic periodic reviews for overage documents and notify the PA directly of overage documents. In addition, the PA can query the system for any document and perform an automated check against cancelled and inactive references. The PA also will have ready access to required knowledge sources. With electronic document processing and the availability of on-line information from ASSIST, it is no longer necessary to require a hardcopy validation notice as a means of meeting the intent of the overage document review process. An electronic validation system will allow the PA to indicate via the Web portal the validity of a document.

The second scenario is referred to as Customer-Driven Document Review, as described in Tab D1.07. That Tab contains recommendations on using customer need rather than time-periods as the basis to conduct periodic document reviews and updates. PAs will be able to prioritize overage documents along with other standardization projects to best meet customer needs.

In either scenario, a desirable functionality is a workload tracking and management system that allows PAs to manage the workload. Information, such as which documents are under review, their status, actions past due, and a schedule of documents coming up for review, is of value to the PA.

User Feedback

Document users can submit feedback to the Preparing Activity via DD Form 1426, e-mail, phone, fax, letter, or direct conversation. PAs also receive requests for waivers and deviations from procuring activities. No formal notification system for deviations exists, so PAs are not always notified.

With recent, rapid improvements in Web-based communication and collaboration tools, users that access documents through the Web will have a direct feedback link to the appropriate PA and other administrative points of contact. The system will allow users to submit feedback electronically, register their interest in particular documents, and populate or update a user profile for future notifications and alerts. User feedback will be tracked and stored to ensure more immediate response.

RECOMMENDATIONS

Recommendation #1

In addition to process and policy improvements recommended by the IPT in separate Tabs, the IPT recommends implementation of a Web-based, electronic document development and coordination tool. This tool will facilitate and further improve the standardization document development and coordination business process. Appendix C, *To-Be Business Process Functional Requirements*, contains specific functional requirements, which are summarized in the following section. Core functional requirements of the tool (system) appear below.

- υ System shall be a server-based application accessible through standard Web browsers requiring only standard user platforms and software at no cost to the user.
- υ System shall be integrated with and available within the Information Exchange System (IES) Portal that provides links to a wide range of standardization-related activities, knowledge resources, collaboration functionality, and tools.
- υ System shall be expandable and flexible to accommodate future functionality and interface with existing and future systems.
- υ System shall maximize use of commercially available or government-provided, non-proprietary, off-the-shelf software.
- υ System shall interface with ASSIST modules (e.g., Project, EDS, SD-1).

Recommendation #2

The IPT developed the functional system requirements for a standardization document cradle-to-grave business process. Recognizing that a lack of resources may preclude the fulfillment of all requirements, the IPT recommends that the functionality required to improve the document coordination subprocess receive highest priority. The IPT also recognizes that some functional requirements are common and critical to improving multiple business subprocesses. The critical functions that crosscut multiple subprocesses should be considered carefully during the preliminary system design and planning stages to ensure that the system can be expanded and improved to accommodate all functional requirements.

Recommendation #3

The IPT recommends that DSPO form a Document Development & Coordination User Group to assist in the evaluation and implementation of the software solution, to define specific user requirements, and to tailor the user interface and functionality. The User Group should include key members from the DSP IPTs.

FUNCTIONAL REQUIREMENTS

The IPT developed a detailed list of functional requirements for the recommended document development and coordination tool. The IPT developed the requirements during the course of its meetings, and, in several cases, coordinated and validated the requirements within members' home organizations. Appendix C contains the detailed list.

Following is a description of the improved capability of the Standardization community based on our recommendation for the electronic document development and coordination tool.

- Comment Management

- ™ Reviewers can review documents electronically and submit comments to Preparing Activities.

- ™ Preparing Activities can electronically capture, sort, edit, store, secure, share, and merge Reviewer comments when developing new and revised documents.

- Electronic Distribution Lists

- ™ Preparing Activities and Reviewers can create and store electronic distribution lists by retrieving and modifying existing lists, querying user attributes to create new lists, and retrieving and modifying existing distribution lists from interfaced electronic mail systems.

TM Preparing Activities and Reviewers can combine distribution lists without duplicating addresses.

TM Reviewers can assign temporary proxies to execute assignments and requests for approval during absences.

o Electronic Folder

TM Preparing Activities can create electronic project folders containing data in original format, including document, spreadsheet, drawing, e-mail, HTML, and pdf.

TM Preparing Activities can create electronic project folders containing all project documentation, including project number, documents, decisions, comments, discrepancy notices, completion notices, deferred actions, feedback, and procurement history.

TM Preparing Activities can query and sort electronic project folders by document title and number, author, distribution statement, date, project number, Preparing Activity, Custodians, reviewers, project number, and referenced-by documents.

o Interfaces

TM Preparing Activities, Reviewers, and all other users can access links to a wide range of standardization-related activities, knowledge resources, collaboration functionality, and tools via the IES Portal.

TM Preparing Activities, Reviewers, and all other users can access the tool using standard Web browsers, hardware, and software at no cost to the user.

TM Preparing Activities can access standard authoring and engineering drawing software from within the document development and coordination tool.

TM Preparing Activities and all users can access ASSIST data and functionality from within the tool.

TM Preparing Activities can access procurement history data⁵ from within the tool.

TM Preparing Activities, Reviewers, and other users who register their interest in non-government standards (NGS) can access the websites of NGS organizations via the IES Portal to receive minutes, ballots, and other relevant information.

⁵ The proposed Weapon System Impact Tool would provide such capability.

- Notification/Update

- ™ Preparing Activities may use electronic notification and specify selective read/open receipts throughout the development and coordination process.
 - ™ Preparing Activities will receive automatic electronic notification after others have completed specified tasks, including document review, approvals, and user feedback.
 - ™ Preparing Activities may receive a temporary project number automatically issued by the tool when an LSA fails to respond to a project initiation request within a specified number of days.

- Research/Query

- ™ Preparing Activities and other users can query for data contained within the system, as well as for data contained in interfaced resources, via the IES Portal.
 - ™ Preparing Activities and other users can query project folders and documents by document number, project number, Federal Supply Class (FSC), Federal Supply Group (FSG), weapon system, and item type.
 - ™ Preparing Activities can query user registration profiles by interest in document number, FSC, FSG, weapon system, and item type.
 - ™ Preparing Activities can query and sort document usage statistics by users, number of requests, referenced documents, inactive or pending actions, and DD Form 1426.
 - ™ Preparing Activities can query documents against cancelled and inactive references, and validation rules.

- Security

- ™ Preparing Activities and all users will be required to provide a password to access the system.
 - ™ Preparing Activities may restrict access to the project folder and its contents.

- Templates

- ™ Preparing Activities and all users will have access to document templates and boilerplates.

- User Feedback

- ™ Users may provide feedback electronically from within the system.

- User Registration

- ™ Users will be required to update their contact information and interest profile to use certain document access, review, and comment functions.

- ™ The system automatically will capture user information such as name, date, and contact information when a user accesses a document.

EXISTING GOTS AND COTS CAPABILITY

DoD and the Federal Government overall encourage the use of commercial-off-the-shelf (COTS) software in lieu of custom solutions. Based on information obtained by the IPT during its meetings, we believe sufficient GOTS and COTS solutions are available—some at no charge to federal government agencies—to meet the stated functional requirements. However, an undetermined amount of customization will be required to affect the desired interfaces with legacy systems and legacy data and to tailor the solution for application to the Standardization work environment.

During its meetings, the IPT received briefings and demonstrations from several government and non-government organizations that have developed GOTS/COTS solutions for similar applications. These solutions are listed below:

- American Society for Testing and Materials (ASTM) Forum
- Boomerang [Air Force]
- Document Coordination System (DCS) [Army]
- Defense Supply Center Columbus (DSCC) Document Coordination Tool [DSCC]
- e.POWER [Integic]
- International Military Standardization (IMS)/Work Management System (WMS) [Air Force]
- Joint Computer-Aided Acquisition and Logistic Support (JCALS) [Army-led]
- Livelink [Open Text Corporation].

Appendix D contains a brief summary of each solution.

IMPLEMENTATION PLAN

The IPT focused its efforts on the documentation of the as-is business process and the subsequent development of the to-be business process. The to-be business process is defined by a detailed set of functional requirements found in Appendix C. On acceptance of the IPT recommendations and agreement on a general approach, the proposed Document Development & Coordination User Group should turn its attention to the development of an implementation plan. The IPT proposes that the implementation plan address the following critical issues:

- υ The validation and prioritization of functional requirements through structured interviews or focus groups;
- υ The identification of required and authoritative data sources and legacy systems for integration;
- υ The performance of a security assessment to identify critical security issues;
- υ The determination of hardware and telecommunication requirements based on:
 - ™ Number of documents
 - ™ Size of documents
 - ™ Number of linked websites
 - ™ Number of users
 - ™ Number of databases;
- υ The conduct of a COTS/GOTS evaluation based on this IPT's guiding principles and functional requirements;
- υ The requirements and considerations for system logistics including maintenance, help-desk support, and information validation;
- υ The development of performance metrics;
- υ The development of an effective marketing and promotion plan, which includes the development of an education and training approach;
- υ The development of a phased implementation plan; and
- υ The conduct of pilot programs, as appropriate.

Appendix A

Document Development & Coordination

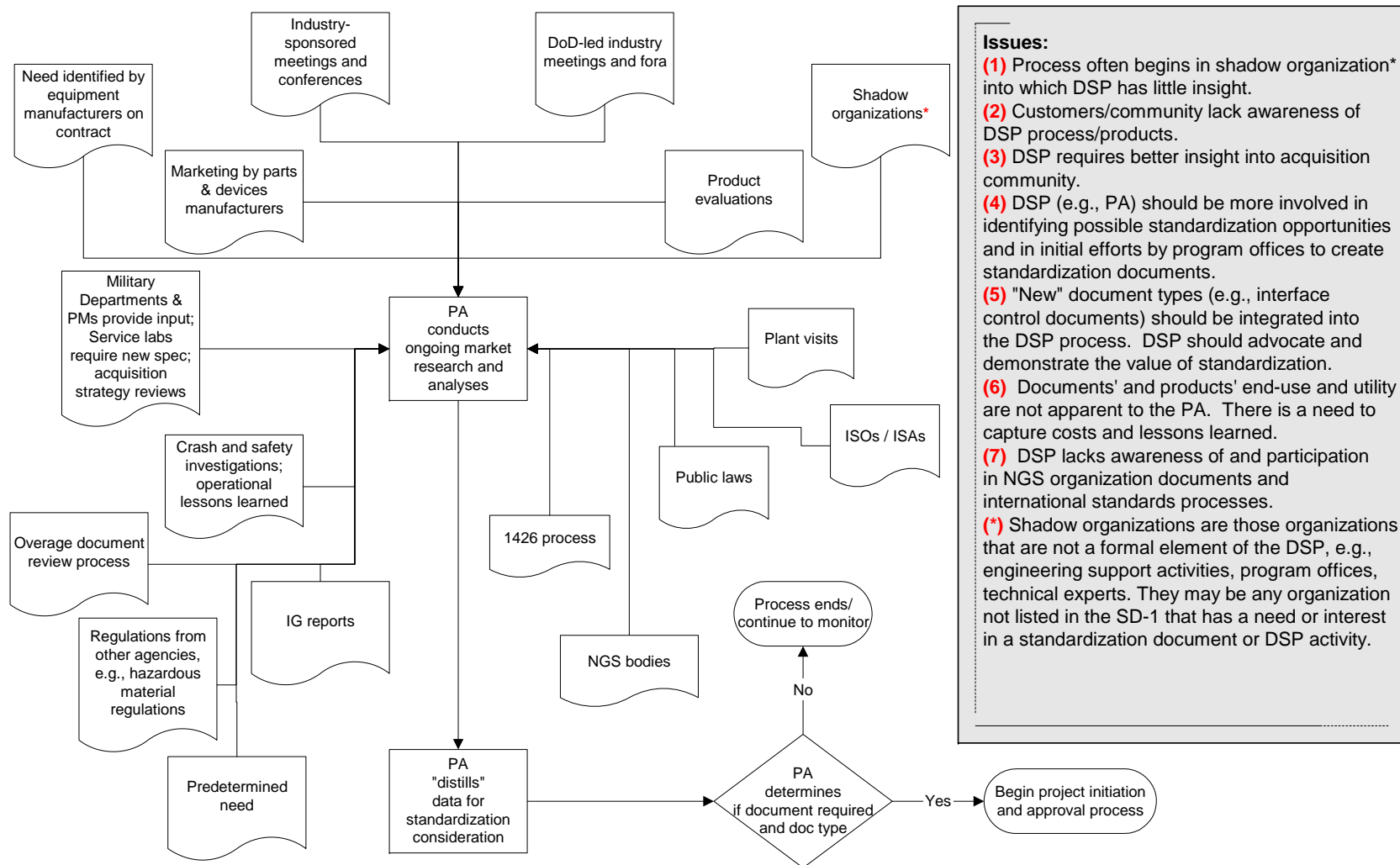
As-Is Business Process

The IPT documented the as-is business process for Standardization document development and coordination using a series of workflow diagrams. For discussion and analysis, the IPT divided the Standardization document cradle-to-grave life cycle into the following eight subprocesses:

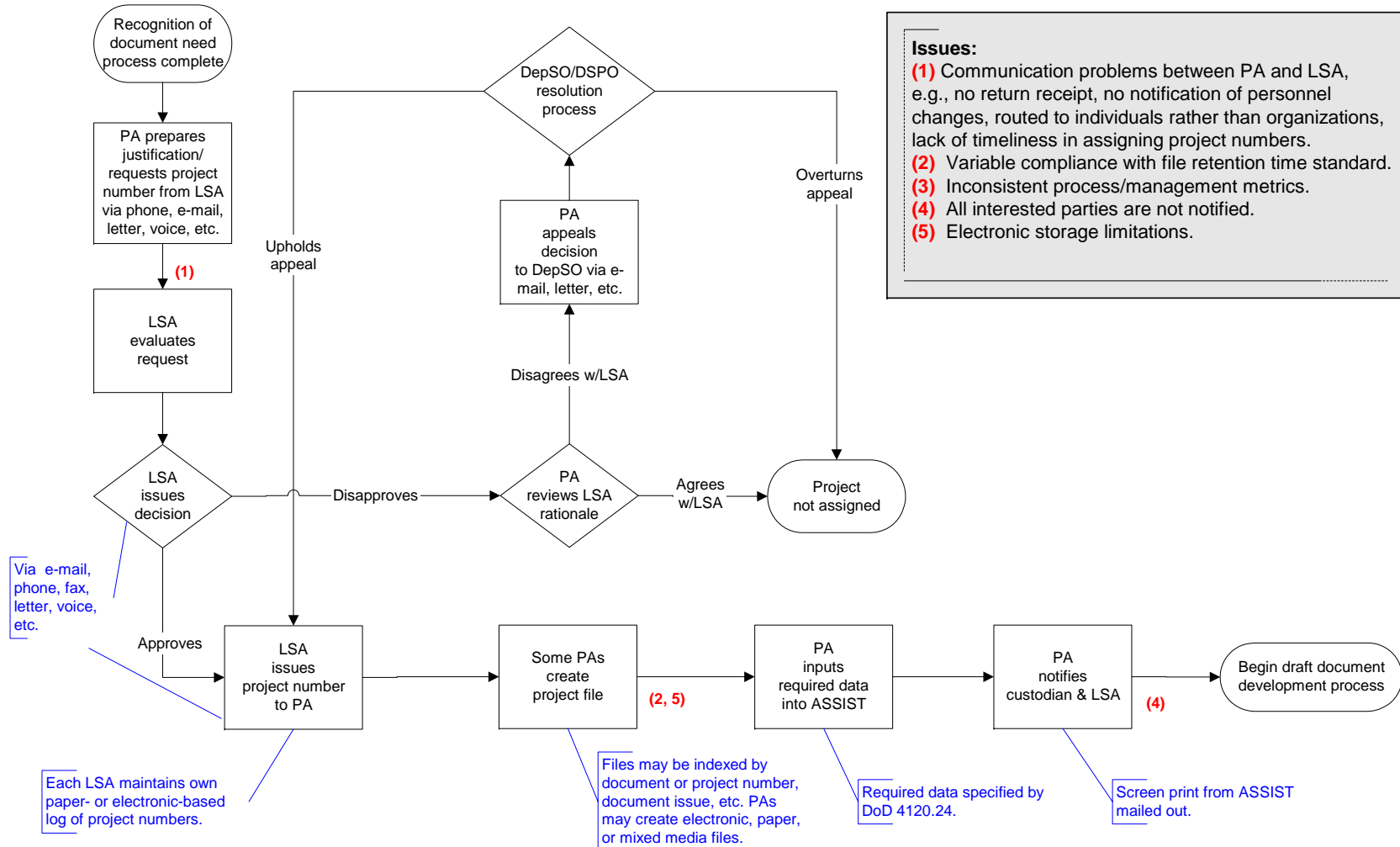
- Recognition of document need
- Project initiation and approval
- Document development and internal coordination
- Document coordination
- Comment resolution
- Dispute resolution (for resolving essential comments)
- Document maintenance
- User feedback.

Figures A through H show the business process for each subprocess.

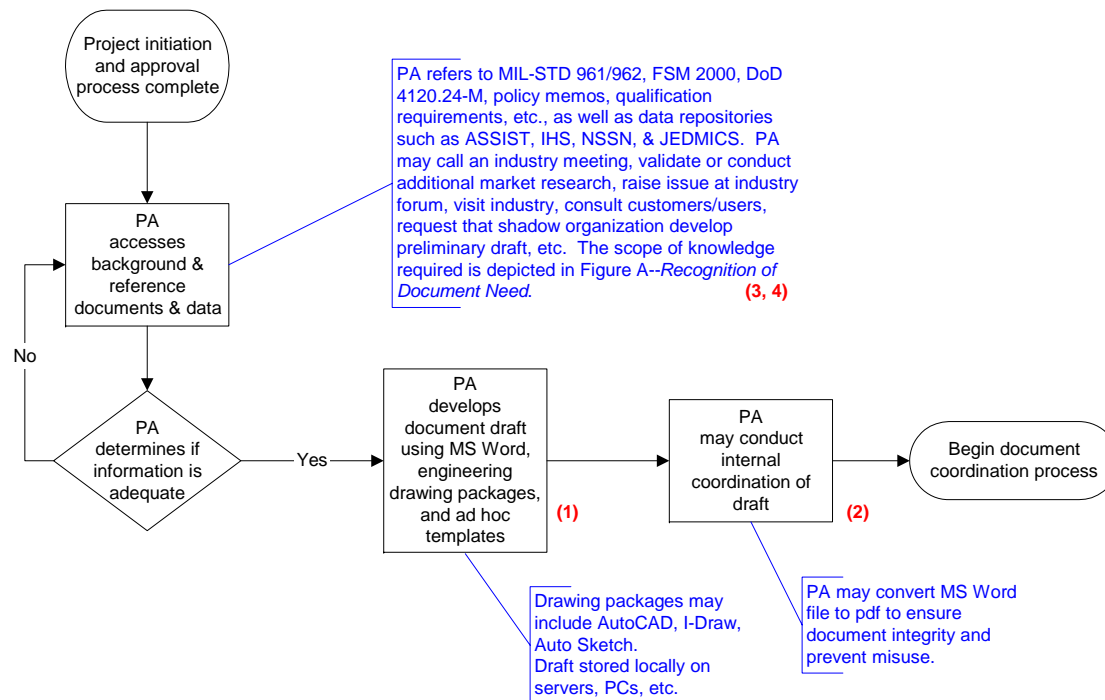
**Figure A: Recognition of Document Need
As-Is Process**



**Figure B: Project Initiation and Approval
As-Is Process**



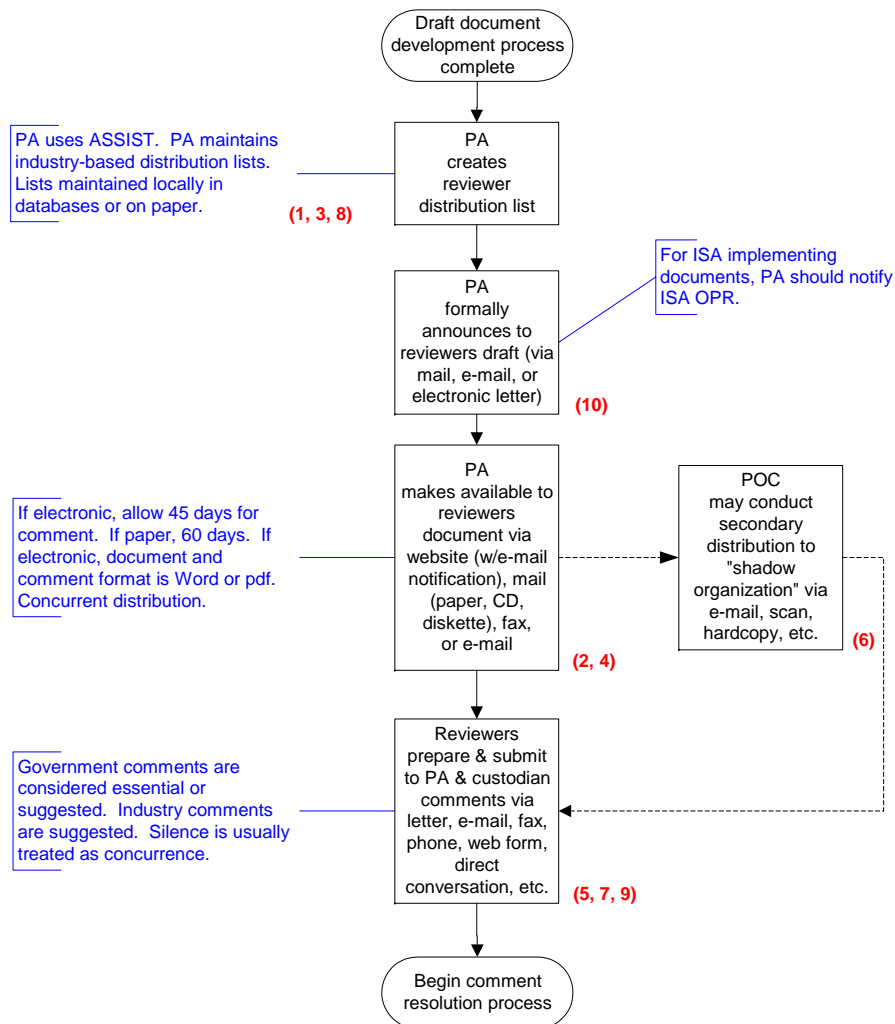
**Figure C: Document Development (Internal Coordination)
As-Is Process**



Issues:

- (1) Formatting and process inconsistencies. Templates and boilerplates are desired for specs and other program office documents.
- (2) Inconsistent management of revisions and versions.
- (3) Insufficient knowledge in some cases about technical issues. Some type of "knowledge management" functionality desired.
- (4) Process perceived as taking too long.

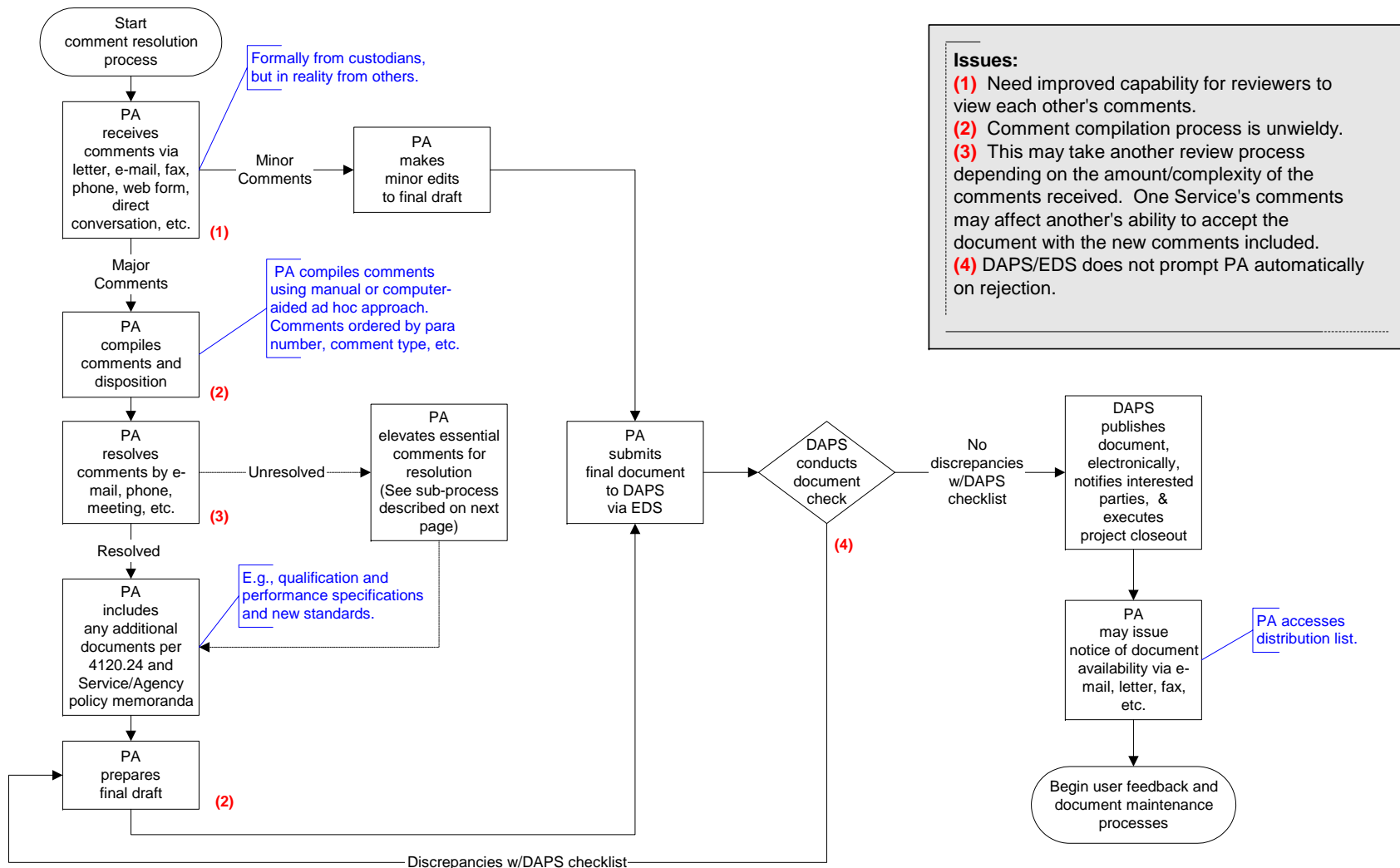
**Figure D: Document Coordination
As-Is Process**



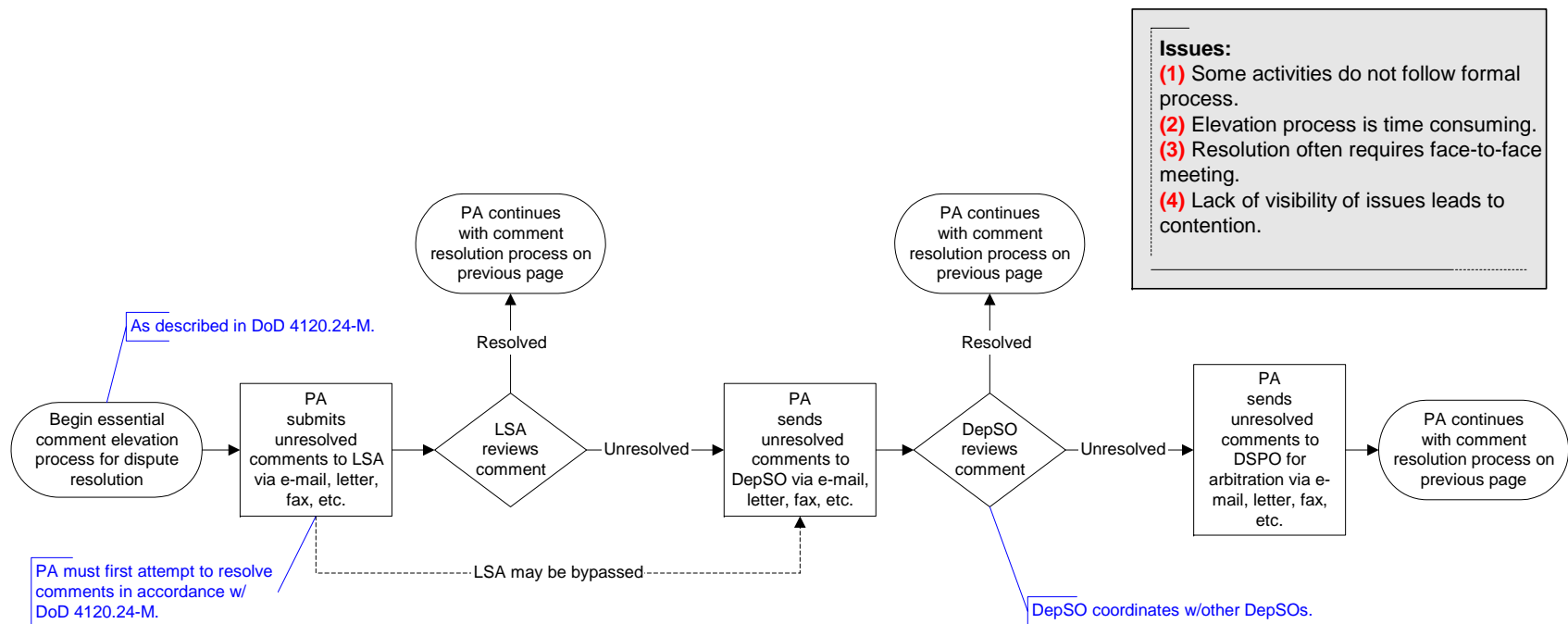
Issues:

- (1)** ASSIST should provide management and shadow organization (technical) POCs.
- (2)** Communication problems between PA and reviewers, e.g., no return receipt, no notification of personnel changes, routed to individuals rather than organizations, late comments, no responses.
- (3)** Difficult to maintain current contact information. Difficult to identify current industry POC within a company.
- (4)** Some documents are too large to e-mail.
- (5)** Cannot manage and highlight revisions/versions.
- (6)** Direct responses to PA by shadow reviewers may not be captured by custodian. Results in uncertainty regarding comment status. Policy does not recognize shadow organizations. Response system not tightly controlled. What is role of custodian?
- (7)** Security issues concerning public posting of comments.
- (8)** "Reviewers" include review activities, custodians, industry associations, and other interested parties.
- (9)** Per DoD 4120.24-M, comments should be consolidated and forwarded by the custodian, but some comments are, in fact, submitted directly.
- (10)** E-mail announcing draft should have required format with all pertinent info provided to custodians and review activities.

Figure E: Comment Resolution As-Is Process



**Figure F: Dispute Resolution (Resolving Essential Comments)
As-Is Process**



**Figure G: Document Maintenance
As-Is Process**

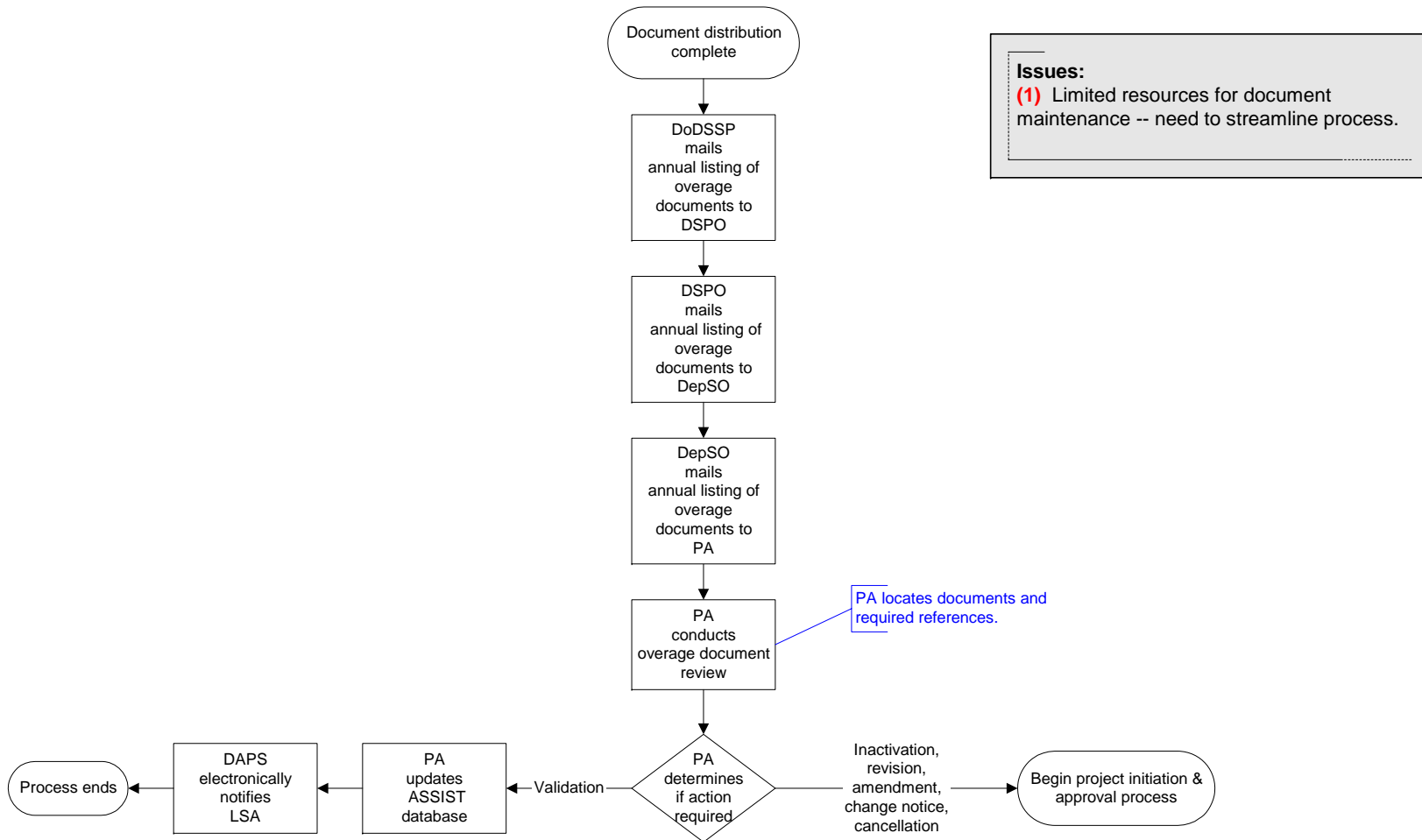
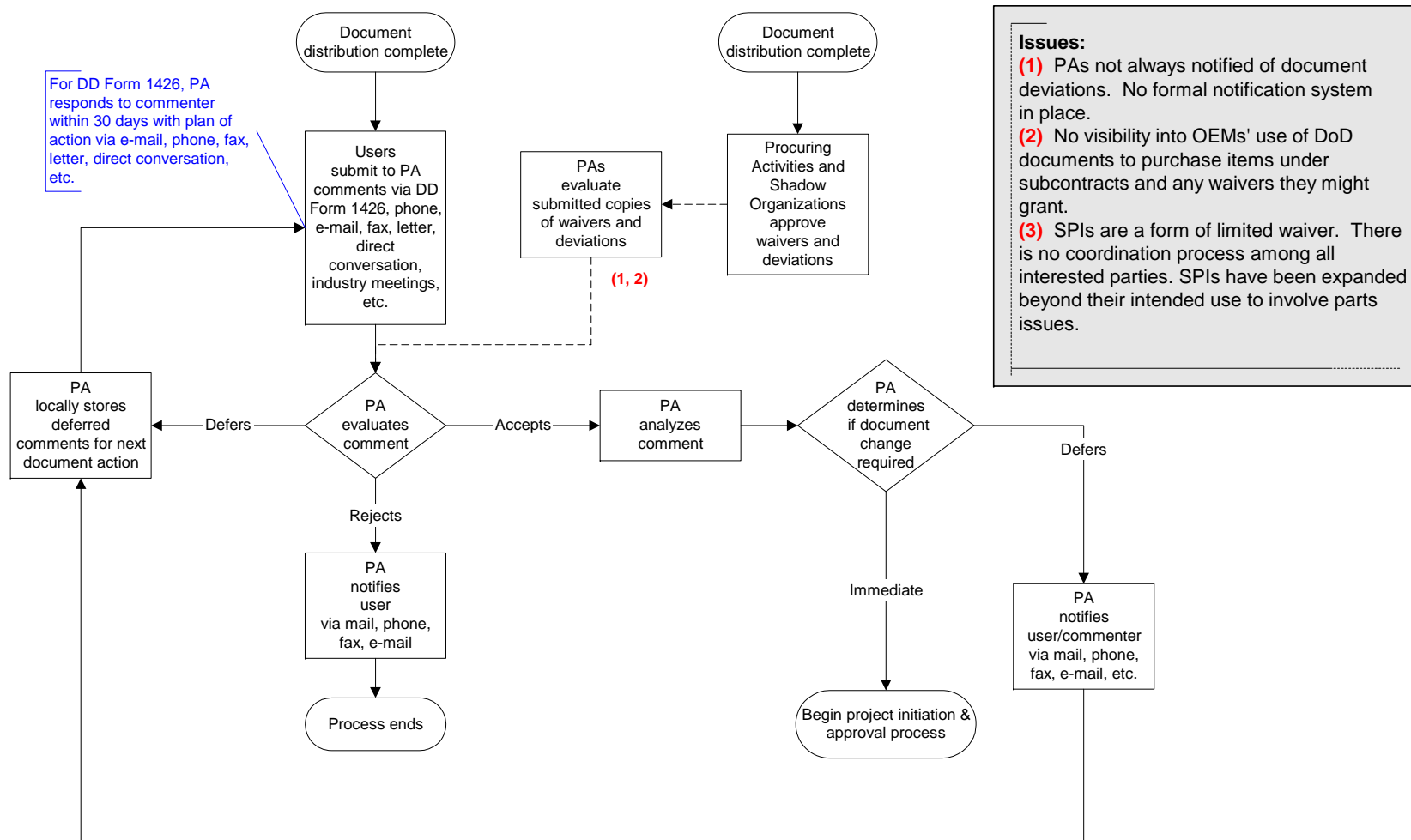


Figure H: User Feedback As-Is Process



Appendix B

Document Development & Coordination

To-Be Business Process

After documenting the as-is business process, the IPT developed a to-be business process that reflects process improvements, policy changes, and the application of Web-based, electronic collaboration technology.

A series of workflow diagrams shows the to-be business process. For discussion and analysis, the IPT divided the Standardization document cradle-to-grave lifecycle into eight⁶ subprocesses:

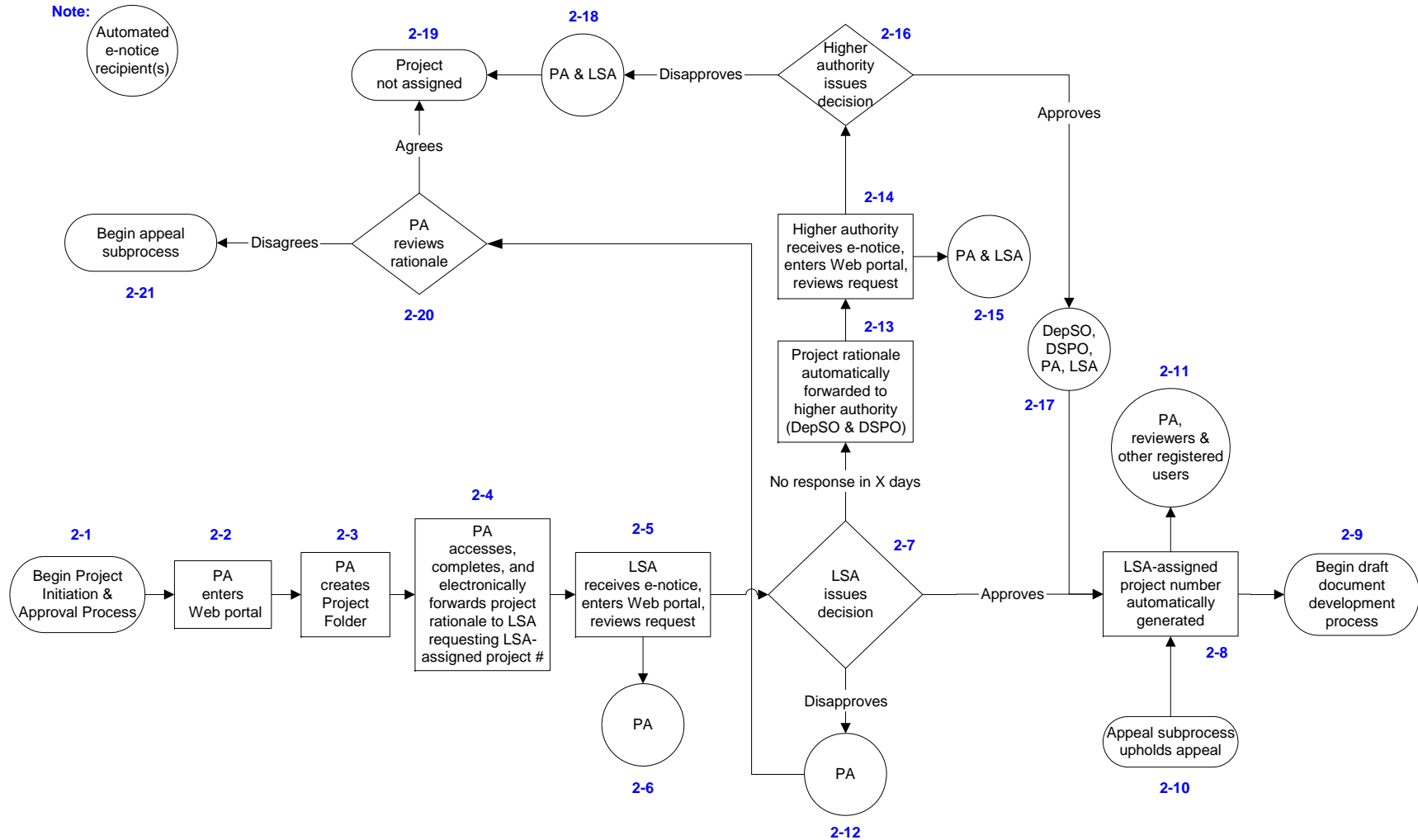
- υ Project initiation and approval
- υ Appeal (for project initiation)
- υ Document development (and internal coordination)
- υ Document coordination
- υ Dispute resolution (for resolving essential comments)
- υ Document completion
- υ Document maintenance
- υ User feedback.

Figures I through Q show the business process for each subprocess.

We have included two representations of the document maintenance to-be business process. The first, in Figure O, depicts the improvements as described in Tab D1.04—Electronic Validation. The second, in Figure P, depicts the improvements as described in Tab D1.07—Customer-Driven Document Review. The DSPO may elect to adopt elements from each scenario.

⁶ The eight to-be subprocesses differ from the eight as-is subprocesses because of suggested improvements to the entire business process. This IPT forwarded requirements for information and knowledge access [that appear in the “recognition of document need” as-is subprocess] to the Infrastructure IPT for inclusion in its IES Portal requirements document.

Figure I: Project Initiation and Approval To-Be Process



**Figure J: Appeal Subprocess
To-Be Process**

Note:

Automated
e-notice
recipient(s)

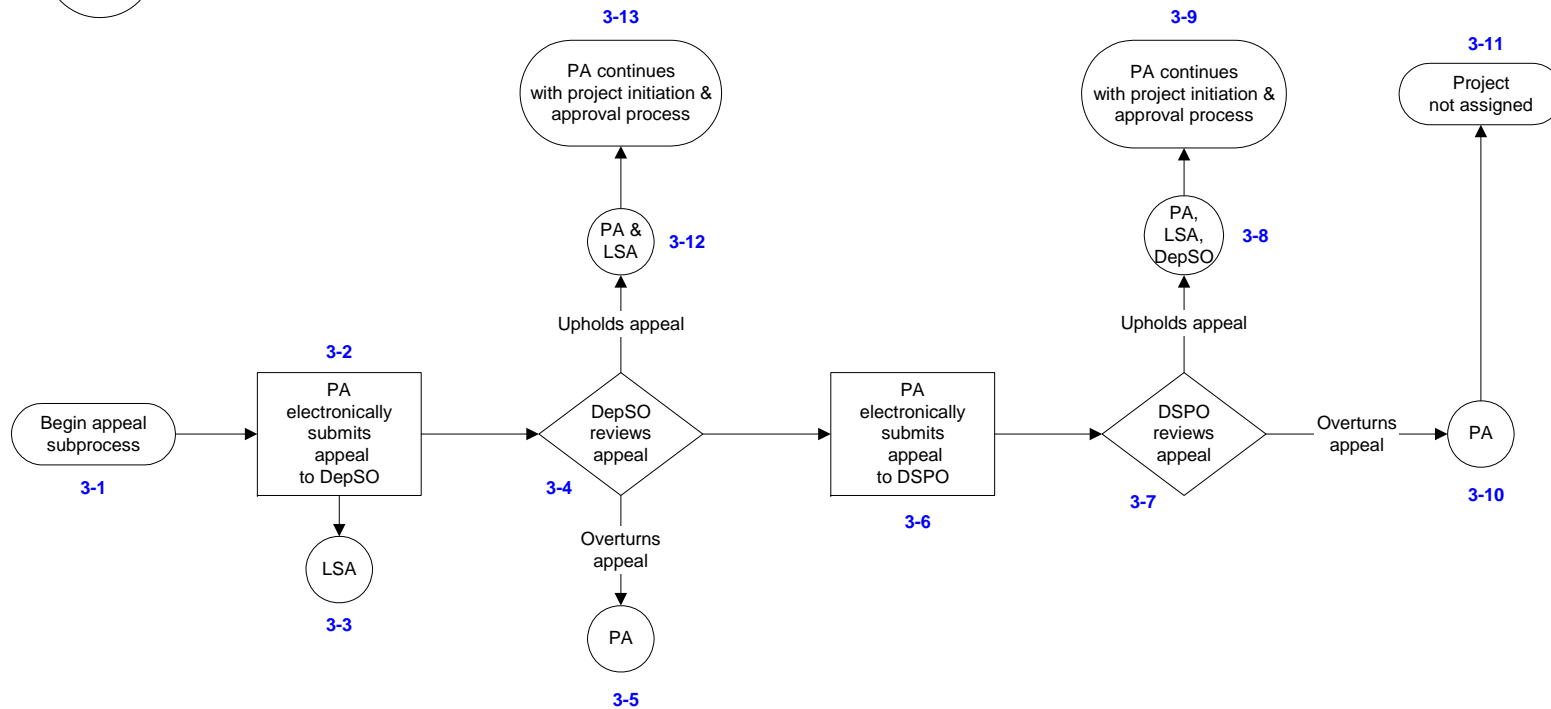


Figure K: Document Development (& Internal Coordination) To-Be Process

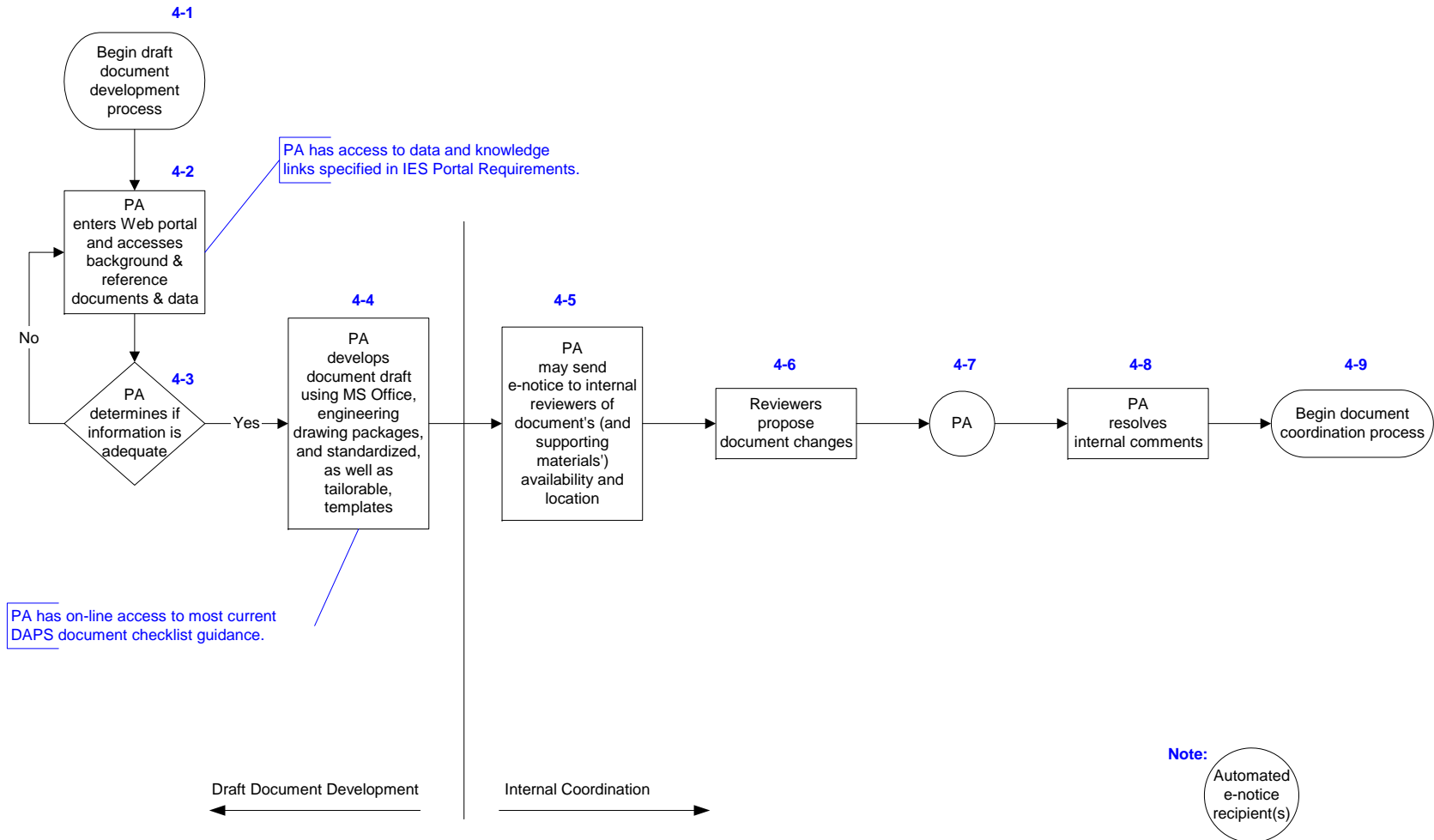
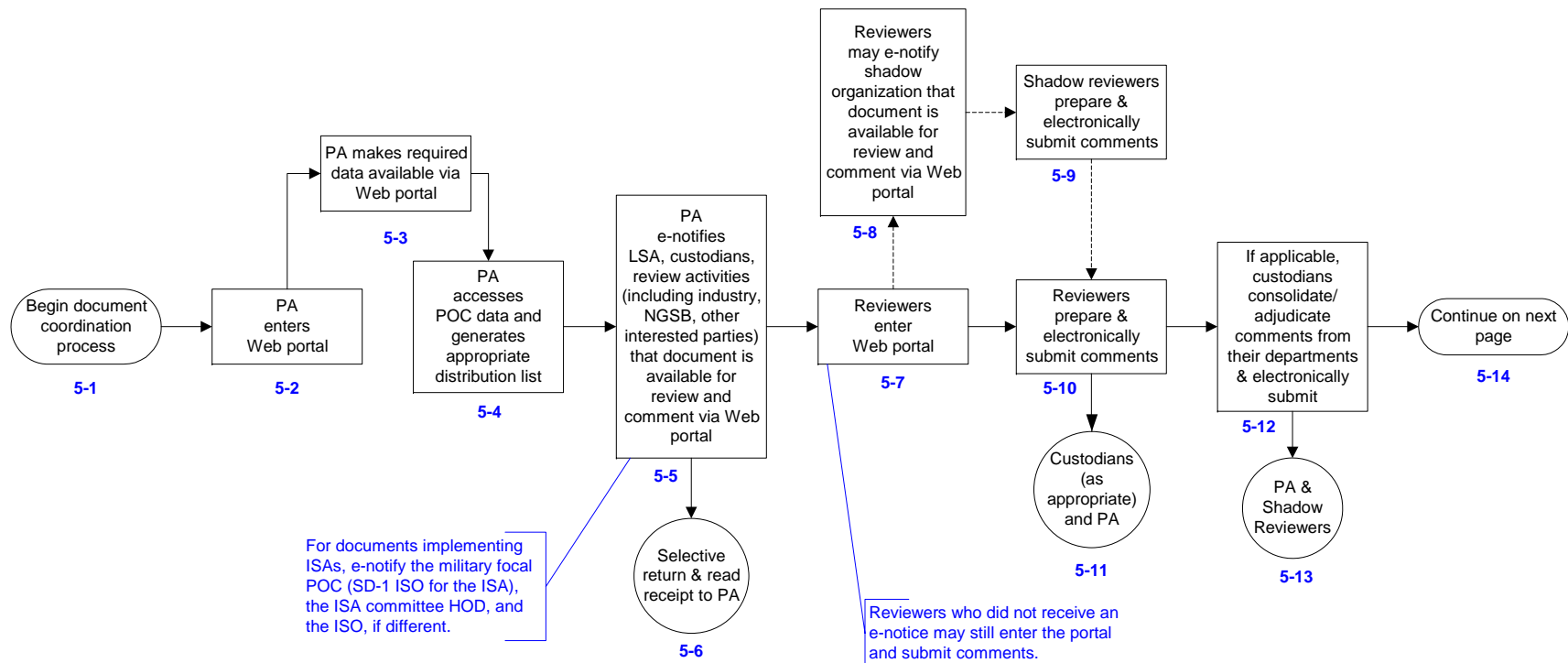


Figure L: Document Coordination To-Be Process

Note:

Automated
e-notice
recipient(s)



**Figure L: Document Coordination, Continued
To-Be Process**

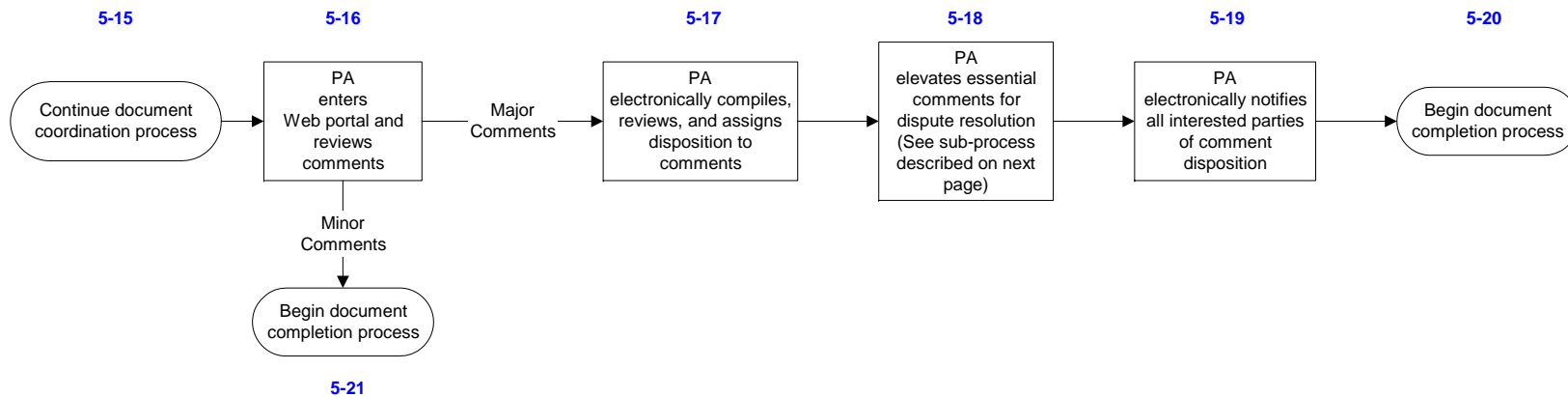
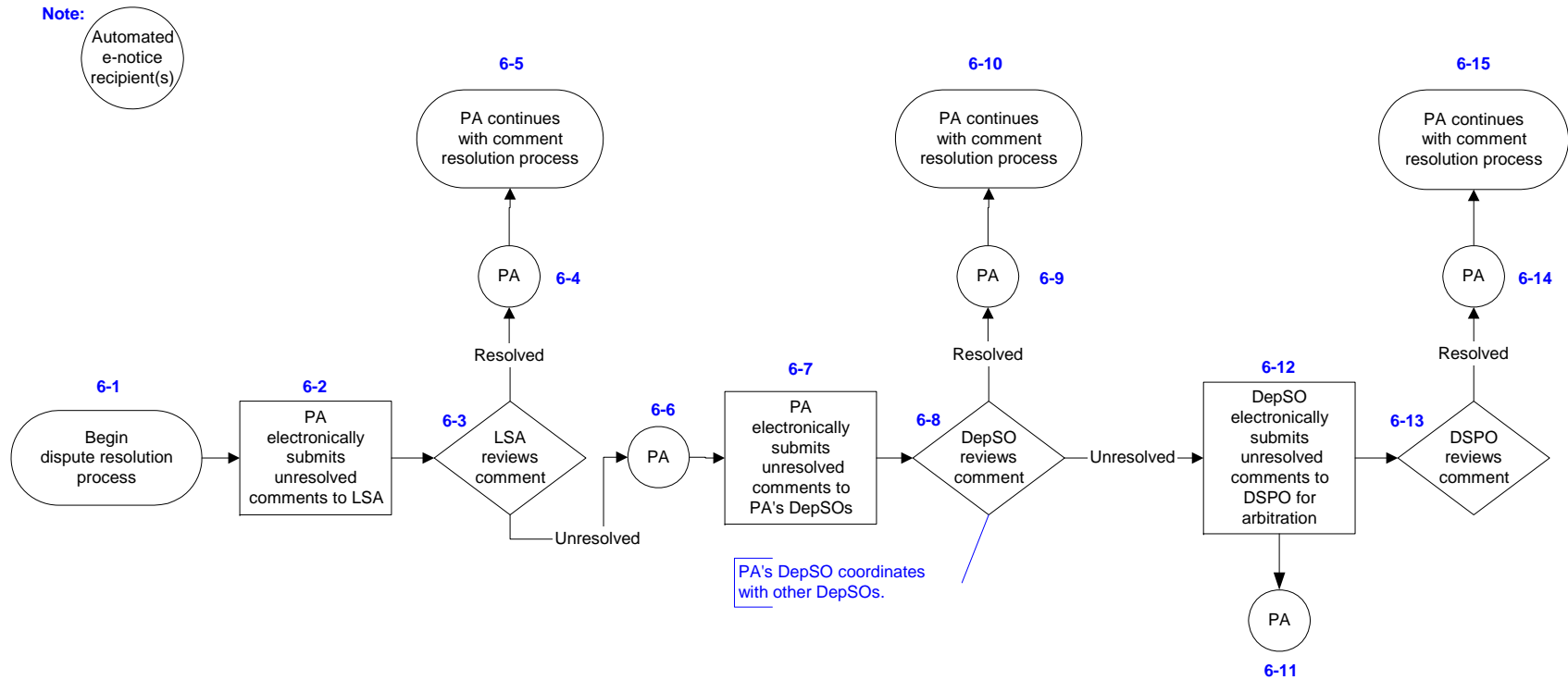
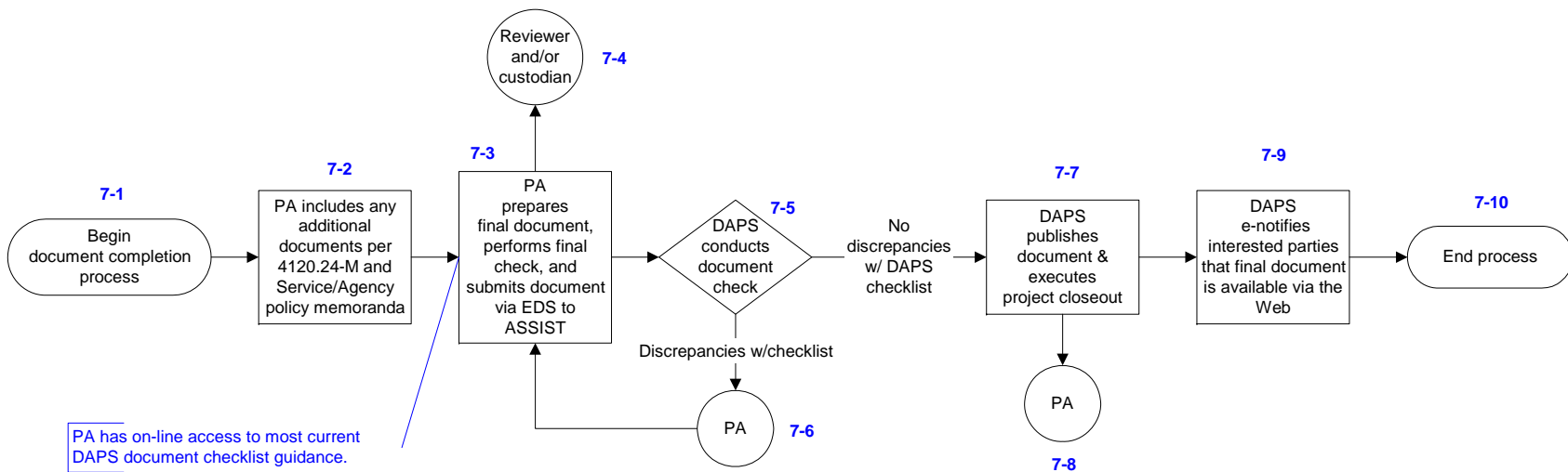


Figure M: Dispute Resolution (Resolving Essential Comments) To-Be Process

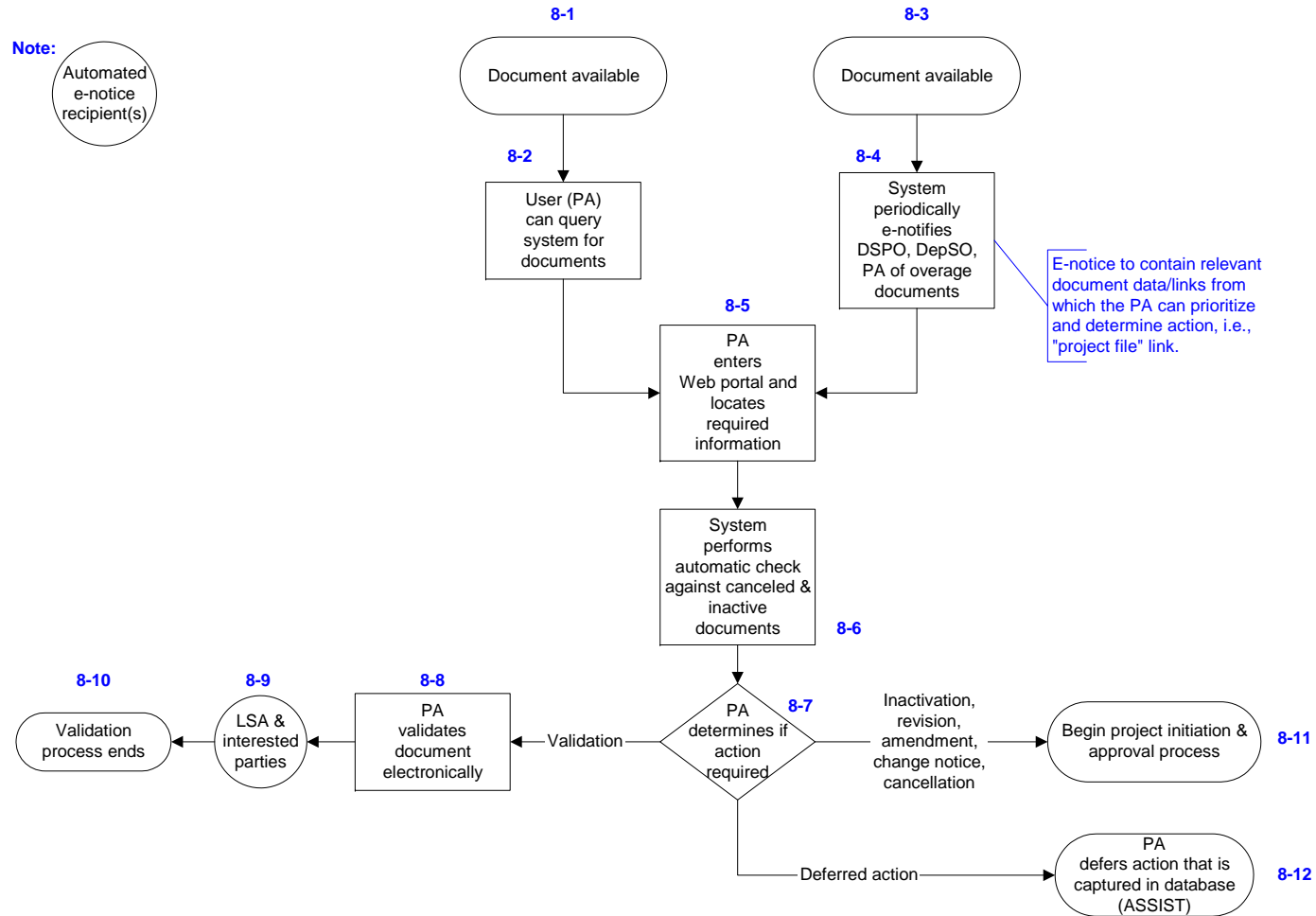


**Figure N: Document Completion
To-Be Process**



Note:
Automated
e-notice
recipient(s)

**Figure O: Document Maintenance
(Scenario 1 -- Electronic Validation)
To-Be Process**



**Figure P: Document Maintenance
(Scenario 2 -- Customer-Driven Document Review)
To-Be Process**

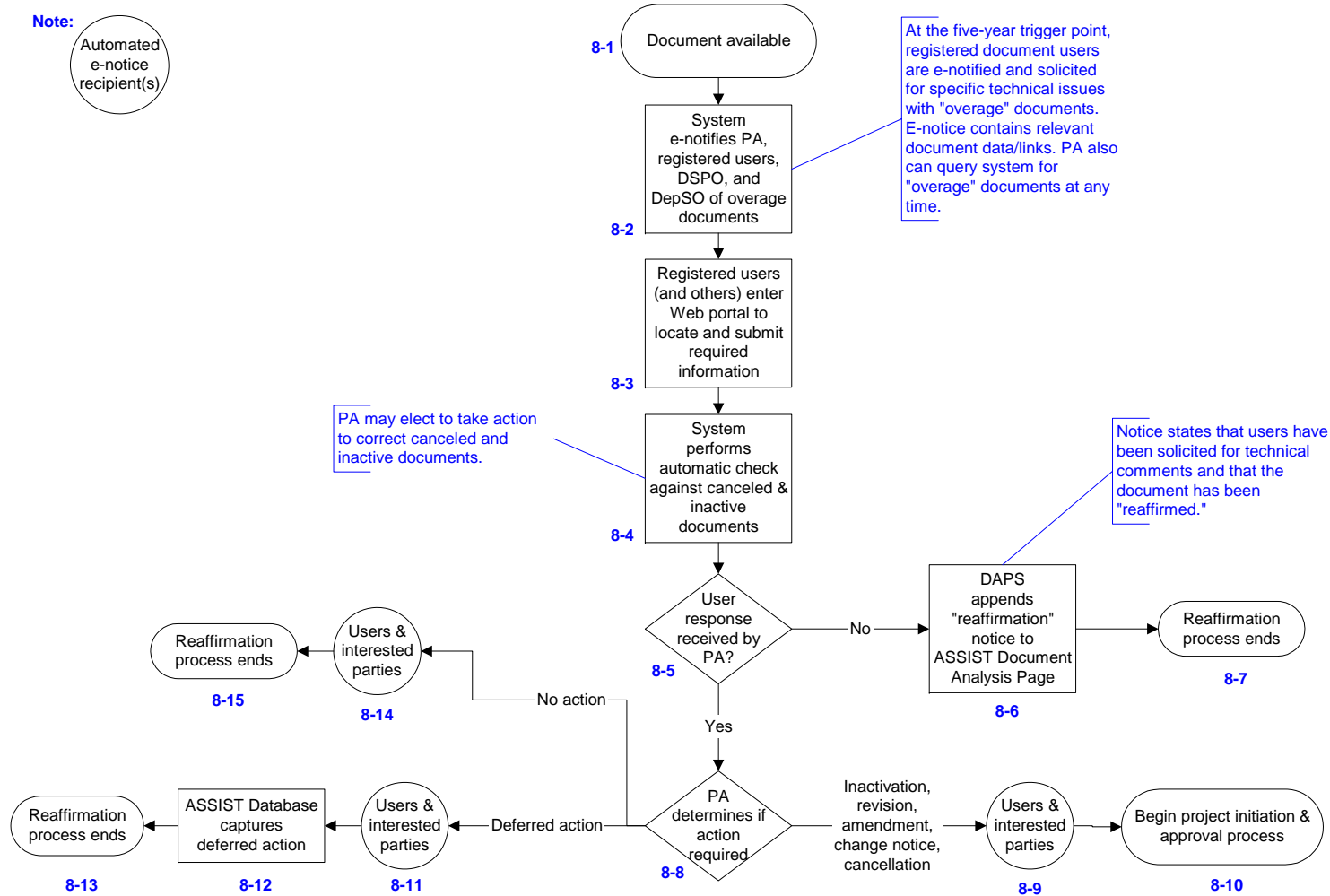
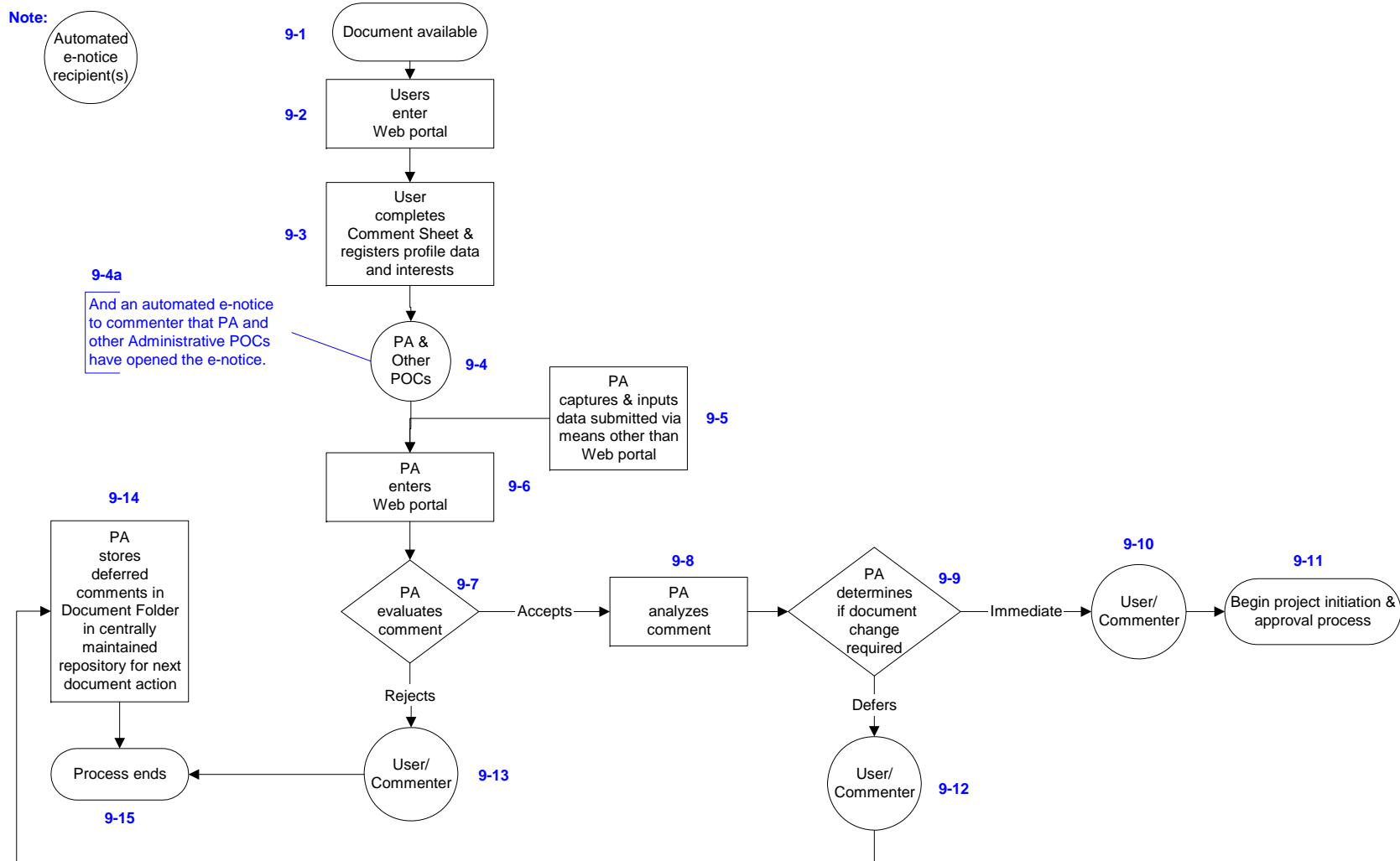


Figure Q: User Feedback To-Be Process



Appendix C

Document Development & Coordination Tool

Functional Requirements

This appendix lists the detailed functional requirements for the proposed Standardization document development and coordination tool. Functional requirements define the actual business need associated with a particular business process area.

The IPT linked the requirements to specific business processes as documented in the workflow diagrams in Appendix B, Figures I through Q.⁷ When a single requirement applies to more than one process, the requirement is repeated in each relevant process as appropriate. General functional requirements apply to all business processes and, therefore, are not repeated under each business process. In addition, certain core system requirements, which are general and pervasive throughout the system, are not repeated under each process.

⁷ We include the functional requirements that reflect Figure O: Scenario 1—Electronic Validation. Functional requirements that reflect Figure P: Scenario 2—Customer-Drive Document Review are not included.

Functional Requirements

Sorted by Business Process

Business Process #	Business Process Description	Functional Requirement	Functional Requirement Description	Ref ID #
02 - Project Initiation & Approval				
2-03	PA creates project folder	Electronic Folder	System shall capture files in original authored format.	165
2-03	PA creates project folder	Electronic Folder	System shall allow PA to create a project folder containing files of various format including document, spreadsheet, drawing, e-mail, HTML, pdf, and scanned files.	16
2-04	PA accesses, completes, and electronically forwards project rationale to LSA and requests LSA-assigned project number	Notification/Update	System shall allow PA to e-notify LSA and specify selective return and read/open receipts.	19
2-06	PA automatically notified	Notification/Update	System shall automatically e-notify (if option selected) PA when e-notices have been read/open.	21
2-07	LSA issues decision	Electronic Folder	System shall link decision to the project folder.	22
2-08	LSA-assigned project number automatically generated	Electronic Folder	System shall generate a project number upon LSA approval.	23
2-11	PA, reviewers, and other registered users automatically notified	Notification/Update	System shall automatically e-notify registered document users of project status and website location for additional information.	24
2-12	PA automatically notified	Notification/Update	System shall automatically notify PA of LSA disapproval and rationale.	25
2-13	Project rationale automatically forwarded to higher authority (DepSO & DSPO)	Notification/Update	System shall automatically forward e-notice to higher authority if no LSA response within specified number of days.	26
2-15	PA and LSA automatically notified	Notification/Update	System shall automatically e-notify PA and LSA that request for project approval has been sent to higher authority.	28

Business Process #	Business Process Description	Functional Requirement	Functional Requirement Description	Ref ID #
2-16	Higher authority issues decision	Electronic Folder	System shall link decision to the project folder.	29
2-17	DepSO, DSPO, PA and LSA automatically notified	Notification/Update	System shall automatically e-notify DepSO, DSPO, PA, and LSA of project approval.	30
2-18	PA and LSA automatically notified	Notification/Update	System shall automatically e-notify PA and LSA of project disapproval.	31
2-19	Project not assigned	Electronic Folder	System shall maintain all available project-related data accessible via the IES Portal.	32
2-20	PA reviews rationale	Electronic Folder	System shall link decision to the project folder.	33
03 - Appeal Subprocess				
3-XX	Appeal Subprocess	Electronic Folder	System shall provide the same general electronic folder functionality as required for the Project Initiation and Approval subprocess.	186
3-XX	Appeal Subprocess	Notification/Update	System shall provide the same general notification/update functionality as required for the Project Initiation and Approval subprocess.	187
04 - Document Development				
4-02	PA enters Web portal and accesses background, reference documents, and data	Research/Query	Data and knowledge access requirements are specified in the IES Portal Deliverable.	188
4-04	PA develops draft document	Interfaces	System shall allow PAs to open standard document authoring software (MS Office) and engineering drawing software without exiting the system.	36
4-04	PA develops draft document	Templates	System shall provide document templates based on document type.	37
4-05	PA may e-notify internal reviewers of draft document's availability for internal review	Notification/Update	System shall allow PA to e-notify reviewers (distribution list) of document's availability and location for review, with option of specifying selective return and read/open receipts.	38

<i>Business Process #</i>	<i>Business Process Description</i>	<i>Functional Requirement</i>	<i>Functional Requirement Description</i>	<i>Ref ID #</i>
4-05	PA may e-notify internal reviewers of draft document's availability for internal review	Notification/Update	System shall allow any individual on the distribution list to unsubscribe from e-notification.	39
4-06	Reviewers propose document changes	Comment Management	System shall allow reviewers to mark-up graphs, tables, and figures.	152
4-06	Reviewers propose document changes	Comment Management	System shall allow reviewer to select paragraph for comment and provide reviewer with comment form pre-populated with document, page, and paragraph number.	45
4-06	Reviewers propose document changes	Comment Management	System shall allow reviewer to enter comment on form and/or mark-up paragraph text.	151
4-06	Reviewers propose document changes	Electronic Folder	System shall link comments to the project folder.	46
4-06	Reviewers propose document changes	Interfaces	System shall automatically provide for registered NGS document users a link to NGSB websites to allow NGS users to register interest with NGSB to receive minutes, ballots, etc.	168
4-06	Reviewers propose document changes	Research/Query	System shall allow reviewer to query and view supporting data necessary for the review process.	42
4-06	Reviewers propose document changes	User Registration	System shall allow users to register document interest at different levels: pending cancellation, revision, overage review.	150
4-06	Reviewers propose document changes	User Registration	System shall request that the user populate/update a user profile that maximizes use of drop-down menus. All fields are optional, but message should read, "If profile data insufficient, comment may be rejected."	43
4-06	Reviewers propose document changes	User Registration	System shall automatically capture name, date, and contact information on users who access each document.	44
4-07	PA automatically notified	Notification/Update	System shall automatically e-notify PA when review is complete.	47
4-08	PA resolves internal comments	Comment Management	System shall allow PA to add comments to the project folder that are submitted outside the web-based process.	181

Business Process #	Business Process Description	Functional Requirement	Functional Requirement Description	Ref ID #
4-08	PA resolves internal comments	Comment Management	System shall link document paragraphs, sections, & pages to the original document and present a copy of the original document to compare with the proposed changes. Preparer should be able to edit source document and cut-and-paste from comment form into a new draft.	180
4-08	PA resolves internal comments	Comment Management	System shall allow PA to edit comments.	182
4-08	PA resolves internal comments	Comment Management	System shall allow PA to restrict access to comments.	179
4-08	PA resolves internal comments	Comment Management	System shall sort comments by reviewer name, organization, paragraph number, comment criticality (essential or non-essential), comment disposition (accepted in full, accepted in part, rejected, rationale).	178

05 - Document Coordination

5-03	PA makes required data available via Web portal	Electronic Folder	System shall allow PA to add/delete files from a project folder containing files of various format including document, spreadsheet, drawing, e-mail, HTML, and scanned files.	50
5-04	PA accesses POC data and generates appropriate distribution list	Electronic Folder	System shall link distribution list to the project folder.	172
5-04	PA accesses POC data and generates appropriate distribution list	Research/Query	System shall allow PA to query the "Standardization repository" by document number, project number, FSC, FSG, weapon system, and/or item type, and generate a distribution list.	51
5-04	PA accesses POC data and generates appropriate distribution list	Research/Query	System shall allow users access to the Weapon System Impact Tool to conduct queries for appropriate additions to the distribution list.	189
5-05	PA e-notifies interested parties that document is available for review and comment via Web	Notification/Update	System shall allow PA to e-notify reviewers (distribution list) of document's availability and location for review, with option of specifying selective return and read/open receipts.	52
5-05	PA e-notifies interested parties that document is available for review and comment via Web	Notification/Update	System shall allow any individual on the distribution list to unsubscribe from e-notification.	53

Business Process #	Business Process Description	Functional Requirement	Functional Requirement Description	Ref ID #
5-06	Selective return and read receipt to PA	Electronic Folder	System shall link read receipt to the project folder.	173
5-06	Selective return and read receipt to PA	Notification/Update	System shall automatically e-notify PA when review is complete.	54
5-07	Reviewers enters Web portal	Interfaces	System shall automatically provide for registered NGS document users a link to NGSB websites to allow NGS users to register interest with NGSB to receive minutes, ballots, etc.	169
5-07	Reviewers enters Web portal	Research/Query	System shall allow reviewer to query and view supporting data necessary for the review process.	57
5-07	Reviewers enters Web portal	User Registration	System shall request that the user populate/update a user profile that maximizes use of drop-down menus. All fields are optional, but message should read, "If profile data insufficient, comment may be rejected."	58
5-07	Reviewers enters Web portal	User Registration	System shall automatically capture name, date, and contact information on users who access each document.	59
5-07	Reviewers enters Web portal	User Registration	System shall allow users to register document interest at different levels: pending cancellation, revision, overage review.	7
5-08	Reviewers may e-notify shadow organization that document is available for review and comment via Web	Notification/Update	System shall allow any individual on the distribution list to unsubscribe from e-notification.	62
5-08	Reviewers may e-notify shadow organization that document is available for review and comment via Web	Notification/Update	System shall allow PA to e-notify reviewers (distribution list) of document's availability and location for review, with option of specifying selective return and read/open receipts.	61
5-08	Reviewers may e-notify shadow organization that document is available for review and comment via Web	Research/Query	System shall allow PA to query the "Standardization repository" by document number, FSC, FSG, weapon system, and/or item type, and generate a distribution list. (Reference link to Weapon Impact Tool?)	60
5-09	Shadow reviewers prepare and electronically submit comments	Comment Management	System shall allow official custodians or reviewers to tag comments as "essential" or "suggested" and require justification text for essential comments.	156
5-09	Shadow reviewers prepare and electronically submit comments	Comment Management	System shall allow reviewers to mark-up graphs, tables, and figures.	153

<i>Business Process #</i>	<i>Business Process Description</i>	<i>Functional Requirement</i>	<i>Functional Requirement Description</i>	<i>Ref ID #</i>
5-09	Shadow reviewers prepare and electronically submit comments	Comment Management	System shall allow reviewer to enter comment on form and/or mark-up paragraph text.	164
5-09	Shadow reviewers prepare and electronically submit comments	Comment Management	System shall allow reviewer to select paragraph for comment and provide reviewer with comment form pre-populated with document, page, and paragraph number.	163
5-09	Shadow reviewers prepare and electronically submit comments	Comment Management	System shall allow reviewers to view all comments if preparer so designates.	159
5-09	Shadow reviewers prepare and electronically submit comments	Electronic Folder	System shall link comments to the project folder.	69
5-09	Shadow reviewers prepare and electronically submit comments	Interfaces	System shall automatically provide for registered NGS document users a link to NGSB websites to allow NGS users to register interest with NGSB to receive minutes, ballots, etc.	170
5-09	Shadow reviewers prepare and electronically submit comments	Notification/Update	System shall automatically e-notify shadow organization when review is complete.	70
5-09	Shadow reviewers prepare and electronically submit comments	Research/Query	System shall allow reviewer to query and view supporting data necessary for the review process.	65
5-09	Shadow reviewers prepare and electronically submit comments	User Registration	System shall allow users to register document interest at different levels: pending cancellation, revision, overage review.	148
5-09	Shadow reviewers prepare and electronically submit comments	User Registration	System shall automatically capture name, date, and contact information on users who access each document.	67
5-09	Shadow reviewers prepare and electronically submit comments	User Registration	System shall request that the user populate/update a user profile that maximizes use of drop-down menus. All fields are optional, but message should read, "If profile data insufficient, comment may be rejected."	66
5-10	Reviewers prepare and electronically submit comments	Comment Management	System shall allow reviewer to enter comment on form and/or mark-up paragraph text.	155

Business Process #	Business Process Description	Functional Requirement	Functional Requirement Description	Ref ID #
5-10	Reviewers prepare and electronically submit comments	Comment Management	System shall allow official custodians or reviewers to tag comments as "essential" or "suggested" and require justification text for essential comments. System shall automatically tag comments from DoD interested parties and non-DoD interested parties as "suggested."	6
5-10	Reviewers prepare and electronically submit comments	Comment Management	System shall allow reviewers to mark-up graphs, tables, and figures.	72
5-10	Reviewers prepare and electronically submit comments	Comment Management	System shall allow reviewer to select paragraph for comment and provide reviewer with comment form pre-populated with document, page, and paragraph number.	71
5-10	Reviewers prepare and electronically submit comments	Comment Management	System shall allow reviewers to view all comments if PA so designates.	74
5-10	Reviewers prepare and electronically submit comments	Electronic Folder	System shall link comments to the project folder.	174
5-10	Reviewers prepare and electronically submit comments	Research/Query	System shall allow reviewer to query and view supporting data necessary for the review process.	75
5-11	Custodians (as appropriate) and PA automatically notified	Notification/Update	System shall automatically issue courtesy copy of e-notice regarding completion to the custodian and PA, as appropriate.	77
5-12	If applicable, custodians consolidate/adjudicate comments from departments and electronically submit	Comment Management	System shall allow custodians to mark-up graphs, tables, and figures.	154
5-12	If applicable, custodians consolidate/adjudicate comments from departments and electronically submit	Comment Management	System shall allow custodians to enter comment on form and/or mark-up paragraph text.	162
5-12	If applicable, custodians consolidate/adjudicate comments from departments and electronically submit	Comment Management	System shall allow custodians to view all comments if preparer so designates.	160
5-12	If applicable, custodians consolidate/adjudicate comments from departments and electronically submit	Comment Management	System shall allow official custodians or reviewers to tag comments as "essential" or "suggested" and require justification text for essential comments.	157

<i>Business Process #</i>	<i>Business Process Description</i>	<i>Functional Requirement</i>	<i>Functional Requirement Description</i>	<i>Ref ID #</i>
5-12	If applicable, custodians consolidate/adjudicate comments from departments and electronically submit	Comment Management	System shall allow custodians to select paragraph for comment and provide custodians with comment form pre-populated with document, page, and paragraph number.	161
5-12	If applicable, custodians consolidate/adjudicate comments from departments and electronically submit	Comment Management	System shall provide ability to merge comments into document.	183
5-12	If applicable, custodians consolidate/adjudicate comments from departments and electronically submit	Electronic Folder	System shall link comments to the project folder.	175
5-12	If applicable, custodians consolidate/adjudicate comments from departments and electronically submit	Interfaces	System shall allow custodians to open standard document authoring software (MS Office) and engineering drawing software without exiting the system.	185
5-13	PA automatically notified	Notification/Update	System shall automatically issue e-notice to PA when custodian indicates that comments have been consolidated.	80
5-17	PA electronically compiles, reviews, and assigns disposition to comments	Comment Management	System shall sort comments by reviewer name, organization, paragraph number, comment criticality (essential or non-essential), comment disposition (accepted in full, accepted in part, rejected, rationale).	10
5-17	PA electronically compiles, reviews, and assigns disposition to comments	Comment Management	System shall allow PA to edit comments.	87
5-17	PA electronically compiles, reviews, and assigns disposition to comments	Comment Management	System shall allow PA to add comments to the project folder that are submitted outside the web-based process.	88
5-17	PA electronically compiles, reviews, and assigns disposition to comments	Comment Management	System shall allow PA to restrict access to comments.	91
5-17	PA electronically compiles, reviews, and assigns disposition to comments	Comment Management	System shall link document paragraphs, sections, & pages to the original document and present a copy of the original document to compare with the proposed changes. Preparer should be able to edit source document and cut-and-paste from comment forms into a new draft.	89
5-19	PA electronically notifies all interested parties of comment disposition	Electronic Folder	System shall link comment dispositions to the project folder.	176

Business Process #	Business Process Description	Functional Requirement	Functional Requirement Description	Ref ID #
5-19	PA electronically notifies all interested parties of comment disposition	Notification/Update	System shall allow PA to e-notify reviewers that information regarding comment disposition, issues/problems, and next steps are available via the Web.	92
06 - Dispute Resolution (Resolving Essential Comments)				
6-XX	Dispute Resolution Subprocess	All Functions	System shall provide the same general functionality as required for the Document Coordination subprocess.	190
07 - Document Completion				
7-02	PA includes any additional documents per 4120.24M	Electronic Folder	System shall allow PA to add/delete files from a project folder containing files of various format including document, spreadsheet, drawing, e-mail, HTML, and scanned files.	94
7-02	PA includes any additional documents per 4120.24M	Research/Query	System shall allow PA to query and view supporting data necessary for the review process.	95
7-03	PA prepares final document and submits to ASSIST via EDS	Comment Management	System shall provide ability to merge comments into document.	97
7-03	PA prepares final document and submits to ASSIST via EDS	Interfaces	System shall interface with EDS / ASSIST.	98
7-03	PA prepares final document and submits to ASSIST via EDS	Interfaces	System shall allow PAs to open standard document authoring software (MS Office) and engineering drawing software without exiting the system.	96
7-04	Reviewer and/or custodian automatically notified	Notification/Update	System shall automatically e-notify reviewer and/or custodian of project completion and final document availability.	85
7-05	DAPS conducts document check	Electronic Folder	System shall link discrepancy notice to the project folder.	101
7-05	DAPS conducts document check	Research/Query	System shall perform check of document against cancelled and inactive documents.	99
7-06	PA automatically notified of discrepancies	Notification/Update	System shall automatically e-notify PA of discrepancies with DAPS checklist.	100

Business Process #	Business Process Description	Functional Requirement	Functional Requirement Description	Ref ID #
7-07	DAPS publishes document and executes project closeout	Electronic Folder	System shall maintain all available project-related data and document in original authored format accessible via the IES Portal.	103
7-07	DAPS publishes document and executes project closeout	Electronic Folder	System shall store project folder that is searchable and retrievable.	102
7-08	PA automatically notified	Notification/Update	System shall automatically e-notify PA of project completion.	104
7-09	DAPS e-notifies interested parties that final document is available	Electronic Folder	System shall link project completion notice to the project folder.	105
7-09	DAPS e-notifies interested parties that final document is available	Research/Query	System shall allow DAPS to query user profiles for registered document interest by document number, project number, weapon system, FSC, FSG, and item type and compile a distribution list.	106
08 - Document Maintenance				
8-02	PA queries system for documents	Research/Query	System allows PA to query for current and future overage documents by timeframe, PA, etc.	109
8-04	System periodically e-notifies of overage documents	Notification/Update	System shall e-notify DSPO, DepSO, (LSA?), and PA of overage and cancelled documents, and all affected documents, and links to project folders.	110
8-05	PA enters Web portal and locates Project Folder	Research/Query	System shall allow PA to query and access existing project folders.	111
8-06	System performs automatic check against cancelled and inactive documents	Electronic Folder	System shall link procurement history to the project folder.	116
8-06	System performs automatic check against cancelled and inactive documents	Research/Query	System shall automatically perform document query against cancelled and inactive references.	112
8-06	System performs automatic check against cancelled and inactive documents	Research/Query	System shall allow PA to review and compile procurement history by weapon system or part number.	115
8-06	System performs automatic check against cancelled and inactive documents	Research/Query	System shall allow PA to query and sort by document usage statistics: users, number of "hits" or requests, referenced documents, inactive or pending actions, and 1426s.	114

Business Process #	Business Process Description	Functional Requirement	Functional Requirement Description	Ref ID #
8-06	System performs automatic check against cancelled and inactive documents	Research/Query	System shall allow PA to query user feedback for previously deferred actions.	113
8-07	PA determines if action required	Electronic Folder	System shall link decision and action to the project folder.	177
8-07	PA determines if action required	Interfaces	System shall have capability to interface with item manager to get feedback on procurement history. System shall link document number to corresponding NSN(s). (If no procurements against document in last five years, may be candidate for cancellation.	118
8-07	PA determines if action required	Notification/Update	System shall allow PA to e-notify other preparers of any referenced documents in the affected document, if action required.	117
8-08	PA validates document electronically	Interfaces	System shall apply "validation mark" and validation date to document. (This remains open for discussion.)	120
8-08	PA validates document electronically	Research/Query	System shall allow PA to check document against established validation rules, e.g., cancelled references, correct number and codes.	119
8-09	Automated e-notice to LSA and interested parties	Notification/Update	System shall send automated e-notice to LSA & interested parties as determined by user profiles upon validation.	121
8-12	PA defers action that is captured in database	Electronic Folder	System shall link deferred action to the project folder.	122
09 - User Feedback				
9-03	User completes electronic comment form and updates contact information	Electronic Folder	System shall link user feedback to appropriate PA and other Administrative POCs and route feedback directly to proper contacts (define proper contacts) without first having to pass through a preparer.	126
9-03	User completes electronic comment form and updates contact information	Interfaces	System shall automatically provide for registered NGS document users a link to NGSB websites to allow NGS users to register interest with NGSB to receive minutes, ballots, etc.	171

Business Process #	Business Process Description	Functional Requirement	Functional Requirement Description	Ref ID #
9-03	User completes electronic comment form and updates contact information	User Feedback	System shall provide user with a feedback form: User selects page and paragraph number for comment. System shall automatically insert page and para #s into feedback form. User types in comment or marks-up paragraph text.	125
9-03	User completes electronic comment form and updates contact information	User Registration	System shall allow users to register document interest at different levels: pending cancellation, revision, overage review.	149
9-03	User completes electronic comment form and updates contact information	User Registration	System shall request that the user populate/update a user profile that maximizes use of drop-down menus. All fields are optional, but message should read, "If profile data insufficient, comment may be rejected."	124
9-04	Automated e-notice to PA and other Administrative POCs	Notification/Update	System shall automatically e-notify PA and other Administrative POCs that user feedback has been submitted, and post same notice to Web portal.	127
9-04	Automated e-notice to PA and other Administrative POCs	Notification/Update	System shall automatically e-notify reviewer that PA and other Administrative POCs have opened the e-notice.	128
9-05	PA captures data submitted via means other than the Web portal	Electronic Folder	System shall allow PA and other Administrative POCs to import feedback and other data not submitted via the Web-based system into a project folder.	129
9-07	PA evaluates comment	Security	System shall allow PA to restrict access to user feedback.	12
9-08	PA analyzes comment	Research/Query	System shall allow PA to query and view supporting data necessary for the review process.	132
9-09	PA determines if document change required	User Feedback	System shall link PA's comment disposition and rationale to the user feedback.	133
9-10	Automated e-notice sent to feedback provider	Notification/Update	System shall automatically send feedback disposition to feedback provider.	134
9-12	Automated e-notice sent to feedback provider	Notification/Update	System shall automatically send feedback disposition to feedback provider.	135
9-13	Automated e-notice sent to feedback provider	Notification/Update	System shall automatically send feedback disposition to feedback provider.	136

Business Process #	Business Process Description	Functional Requirement	Functional Requirement Description	Ref ID #
9-14	Deferred comments stored in project folder	Electronic Folder	System shall link user feedback to the project folder.	137
10 - General				
General	Applies throughout the document lifecycle	Comment Management	System shall provide the capability to view a document while prohibiting the reviewer from adding, changing, or deleting information (read-only access).	146
General	Applies throughout the document lifecycle	Electronic Distribution Lists	System shall support development of distribution lists by (a) manually keying each entry, (b) retrieving and modifying a previously created list, (c) querying for entries based on user profile attributes, (d) retrieving and modifying an existing distribution list from an interfaced electronic mail system.	139
General	Applies throughout the document lifecycle	Electronic Distribution Lists	System shall combine distribution lists without duplicating addresses.	140
General	Applies throughout the document lifecycle	Electronic Distribution Lists	System shall store generated distribution lists by name and type for future use.	142
General	Applies throughout the document lifecycle	Electronic Distribution Lists	System shall allow any authorized system user (not just the system administrator) to assign another person as a temporary proxy for executing task assignments or approval requests during that user's unavailability.	143
General	Applies throughout the document lifecycle	Electronic Folder	System shall link all related project data to a project folder.	2
General	Applies throughout the document lifecycle	Electronic Folder	System shall sort project folders by document title and number, author, distribution statement, date, project number, Preparing Activity, Custodian, reviewer, and referenced-by documents.	3
General	Applies throughout the document lifecycle	Interfaces	System shall maximize use of commercially-available or government-provided, non-proprietary, off-the-shelf software.	4
General	Applies throughout the document lifecycle	Interfaces	System shall support viewing of following file types: TIFF, Zipped, DXF, PDF, GIF, HTML, JPEG, BMP, Microsoft Office applications.	167
General	Applies throughout the document lifecycle	Interfaces	System shall be integrated with and available within the IES Portal.	49

<i>Business Process #</i>	<i>Business Process Description</i>	<i>Functional Requirement</i>	<i>Functional Requirement Description</i>	<i>Ref ID #</i>
General	Applies throughout the document lifecycle	Interfaces	System shall be a server-based application accessible through standard Web browsers (MS Explorer and Netscape Navigator) requiring only standard user platforms and software at no cost to user.	20
General	Applies throughout the document lifecycle	Interfaces	System shall be expandable and flexible to accommodate future functionality (including workflow) and interface with legacy systems.	13
General	Applies throughout the document lifecycle	Notification/Update	System shall allow PA to review workload by listing documents under review, document status, actions past due, and schedule of documents coming up for review.	191
General	Applies throughout the document lifecycle	Notification/Update	System shall allow editing of messages contained in automated e-notices.	1
General	Applies throughout the document lifecycle	Notification/Update	System shall automatically e-notify user upon entering Web-based system and/or upon entering existing e-mail system of actions/notices/updates relative to the user within the system..	144
General	Applies throughout the document lifecycle	Notification/Update	System shall date and time stamp all e-notices.	145
General	Applies throughout the document lifecycle	Security	System shall allow authorized PA to control access to system resources (database contents, documents, files, folders) and document functions (create, view, annotate, revise, check-in, check-out, copy, delete, etc.) based on organization data, document type, user group, and user role. If user is denied access to Project Folder or its contents, system shall allow option for user to directly contact preparer to request access.	5
General	Applies throughout the document lifecycle	Security	System shall allow PA to establish access restrictions to project folder and its contents.	18
General	Applies throughout the document lifecycle	Security	System shall require all users to enter a password to access system.	14

Appendix D

Existing GOTS/COTS Capabilities

During the conduct of the IPT, we received several briefings and demonstrations from Defense Department and non-DoD organizations that are implementing software solutions to meet similar requirements for the development and coordination of documents. In this section, we briefly describe eight of those COTS and GOTS software capabilities.

Based on briefings and demonstrations, it appears that the technology exists to accommodate most of the functional requirements developed by the IPT. Implementation issues related to the interfacing of legacy systems, security, and data integrity, however, will pose serious challenges.

ASTM FORUM

The American Society for Testing and Materials developed ASTM Interactive Forum to enable members to work on standardization documents between meetings. Approximately 200 fora are in use by various ASTM-sponsored groups for the purpose of constructing new documents, editing drafts, revising standards, and comparing test data.

The ASTM Interactive Forum requires only a Web browser. It is accessible 24 hours a day and accommodates on- and off-line document editing. The Forum administrator initiates and populates the Forum with member details and documents. After the Forum is active, the Comment Table displays the first 50 characters of each comment, the commenter's name, and the date and time each comment was posted, as well as the document line to which the comment pertains or an indication of a general comment. E-mail communication allows the user to send a single message to multiple members or the entire forum roster. The document uploading function supports most applications, including spreadsheets, databases, and AutoCAD files. The administrator converts all documents to HTML, and they are automatically "sectioned" for easier document reference and navigation. Users can download all or part of the document. Using a Web link, the reviewer can submit comments that the document preparer can then sort by various attributes. Reviewers can view all comments. The website can be reached at <http://astmforums20.micronexx.com/>.

Point of Contact: Mr. Daniel Schultz, Manager, ASTM Technical Committee Operations, 610-832-9716, <mailto:dschultz@astm.org>.

BOOMERANG

Aeronautical Systems Center (ASC), located at Wright-Patterson Air Force Base, developed an automated coordination and comment tool for help in managing comments for large documents. Called *Boomerang*, the tool is designed to allow a customer to comment directly within large Microsoft Word documents on a standard personal computer without specialized tools or additional software that is separate and apart from the document itself. An important feature of the Boomerang tool is its ability to capture, sort, and manage large numbers of comments while maintaining their context within the document. The document preparer can sort and consolidate comments by various attributes, including page number, paragraph number, priority, comment type, and comment author. This allows the adjudication process to be streamlined at the receiving activity.

Boomerang was developed to expedite the process of commenting and coordinating the Joint Service Specification Guides (JSSG), which is currently a suite of nine documents that contain requirements, verifications, guidance, and lessons learned associated with the development and sustainment of aeronautical and related systems. Typically, JSSG documents are hundreds of pages in length.

The software used to include Boomerang into future standardization documents is Government-owned and available from ASC. The tool can be used on documents of any size. Its functionality applies to graphics and tables, as well as to text. Boomerang software developers remain available to help with integration issues and future enhancements.

Boomerang provides a capability that has been universally applauded by those who have seen it. Users are pleased with the ability to gather in context and manage large numbers of comments from a diverse audience. Boomerang also was structured to accommodate the standard DSP comment consolidation process. That process flows from Reviewers to Custodians (or company consolidators) to Preparing Activities, and allows Custodians to adjudicate comments before forwarding them to the Preparing Activities.

Boomerang is compatible with the standard Microsoft suite of tools. Although some training is recommended, Boomerang is a relatively intuitive tool. A training module has been developed and is available.

Point of Contact: Mr. Scott Kuhnen, AFMS-ASC/ENSI, 937-255-8727,
<mailto:Robert.Kuhnen@WPAFB.AF.mil>.

DOCUMENT COORDINATION SYSTEM

The Army Electronic Commerce Directorate (SAIS-IAE) within the Office of Defense Information Systems, Command, Control, Communications, and Computers (ODISC4) has developed the Web-based Document Coordination System (DCS)

to reduce the time and labor spent collecting and resolving document comments. DCS allows ODSIC4 action officers to establish document coordination websites without any special programming. Through DCS, action officers can upload documents in their native format (Microsoft Word, Excel, and Power Point) without conversion, add users, and oversee the entire collaboration process. The site is password protected, and allows reviewers to view documents as they would be printed, provide full text comments, and view reviewer comments. DCS is available at no cost to any federal government organization and can be downloaded from the DCS website at any time. The website can be reached at <http://armyec.army.mil>.

Point of Contact: Ms. Claire Marche, Army EC Directorate, 703-695-1513, <mailto:claire.marche@hqda.army.mil>.

DSCC DOCUMENT COORDINATION TOOL

The Defense Supply Center Columbus (DSCC) Document Standardization Unit (DSCC-VA) is using Internet and Web technology to coordinate defense specifications, standards, and other standardization documents on electronic parts and hardware items. Military and industry organizations are notified when draft documents are available for comment on the DSCC website via e-mail. Interested parties can access the DSCC website and view the actual electronic draft of the standardization document. Reviewers can submit comments to DSCC via e-mail. This website can be reached at <http://www.dsccl.dla.mil/Programs/MilSpec/initialdrafts.asp>.

Point of Contact: Mr. Dave Moore, Defense Supply Center Columbus, 614-692-0675, <mailto:David.Moore@dsccl.dla.mil>.

E.POWER

Integic Corporation is the original developer of the ASSIST and continues to possess an intimate knowledge of system structures, data, interfaces, and processes through the ongoing maintenance and enhancement of the ASSIST environment.

To meet DSP requirements for document development and coordination, Integic would develop a unique solution that would incorporate COTS products, including the use of its e.POWER[®] software, to leverage current technologies for data management, process control, and data accessibility. A number of e.POWER products are available, each focused on a particular set of features and functionality. For example, e.POWER Framework is a product bundle that incorporates document management and workflow disciplines. The workflow component of this bundle, e.POWER WorkManager, automates the flow of information according to structured business rules. e.POWER Web provides a Web-enabled interface that permits authorized users to access information remotely stored in the document management system. e.POWER, through the user of intelligent agents, also

can interface with external systems to leverage information residing in remote data warehouses. For additional information on e.POWER, consult the website at <http://www.usiva.com/>.

Point of Contact: Mr. Carl Lucas, Integic Corporation, 703-803-2886, <mailto:carl.lucas@integic.com>.

INTERNATIONAL MILITARY STANDARDIZATION/ WORK MANAGEMENT SYSTEM

The Air Force International Standardization Office has developed the Work Management System (WMS), an Internet-based, password-protected tool that helps people around the world conduct their International Military Standardization (IMS) business. WMS currently is in use by North Atlantic Treaty Organization (NATO) countries, as well as by Australia and New Zealand.

The two main functions of the WMS are that of a database for promulgated International Standardization Agreements (ISAs) and that of a coordination tool to develop, prepare, and ratify ISAs. The website can be reached at <https://www.imswms.hq.af.mil/>.

Point of Contact: LtCol Bernard Ela, Air Force International Standardization Office, AF/XORD-ISO, 703-696-8422.

JCALs

The Joint Computer-aided Acquisition and Logistic Support (JCALs) system was developed by the Army for DoD-wide use in transitioning from paper-intensive weapons system support to an automated and integrated operational mode.⁸ It provides services for organizing data about weapon system logistics and technical acquisition.

JCALs is a standards-based set of integrated COTS/GOTS hardware and software applications that provides access to information stored in multiple locations and in multiple formats. The JCALs system permits a wide range of users at different locations to share both work processes and data. The set of hardware and software services and support tools are configured to support applications used at a particular site. JCALs initially was developed as a client/server application that allows all JCALs functionality to be launched directly from the user's native Windows environment. Though the client/server application continues to be developed, parallel development of a Web-accessible application is underway. At some sites, JCALs is available only (or as an alternative) on the World Wide Web in a ver-

⁸ JCALs is a joint program with the Army acting as Executive Agent. DUSD(L) is the functional sponsor. The program is executed by PM JCALs under PEO Standard Army Management Information Systems (STAMIS).

sion known as the Web Client. The Web-based application does not yet have the full capabilities offered by the client/server application, but full functionality is planned.⁹

Point of Contact: Mr. Cliff Alligood, Computer Sciences Corporation, 703-876-1139, <mailto:mcalligoo@csc.co>.

LIVELINK

The Naval Sea System Command (NAVSEA) has selected Livelink as its Web-based document management and collaboration solution for its Corporate Document Management System (CDMS). Livelink is being used internally by NAVSEA for document development, coordination, maintenance and a repository.

Livelink is a Web-based document and task management tool that offers users personal workspace, individualized permissions, collaboration, workflow, and reporting capabilities. Livelink has the capability to store documents of various types, including MS Word, Adobe PDF, and CAD/CAM drawings. Users can access Livelink files using a standard PC and Internet browser software. Users who wish to edit the files can retrieve documents in their native format or display the documents for viewing in HTML format. Users can create custom process workflows by using drag-and-drop tools to build the workflow. Livelink will automatically manage the routing of documents from one user to the next, and can display progress reports at any point in the process. A nine-level security system is included in the commercial software, although NAVSEA has worked with the vendor to improve the security features.

NAVSEA Headquarters began rollout in May 2000 of an unlimited server license for approximately 15,000 users. The NAVSEA standardization community is currently tailoring Livelink to its business application. Standardization community users include Navy standardization personnel within NAVSEA HQ, as well as off-site NAVSEA personnel and contractors, who are receiving training and are using CDMS to improve their paper processes and to switch to a Web document management system.

Point of Contact: Ms. Barbara Anderson, NAVSEA Naval Sea Logistics Center, Security & Web Technology Division, 301-744-6100, andersonbal@navsea.navy.mil.

⁹ Joint Computer-aided Acquisition and Logistic Support (JCALS) System PC Web Client End User Manual, Draft, December 30, 1998.